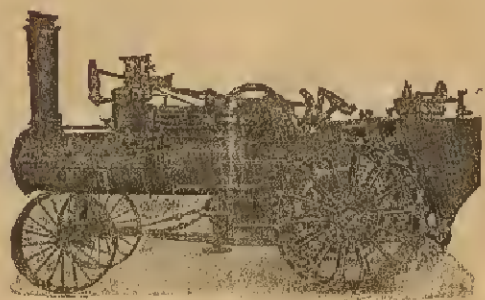


INSTRUCTIONS
— FOR —
OPERATING
“PEERLESS”

ENGINES, SEPARATORS,
CLOVER HULLERS,
STACKERS, WEIGHERS,
SAW MILLS
AND BALING PRESSES



Manufactured Only by
EMERSON-BRANTINGHAM CO.
Incorporated
GEISER WORKS
Waynesboro, Franklin Co., Pa.

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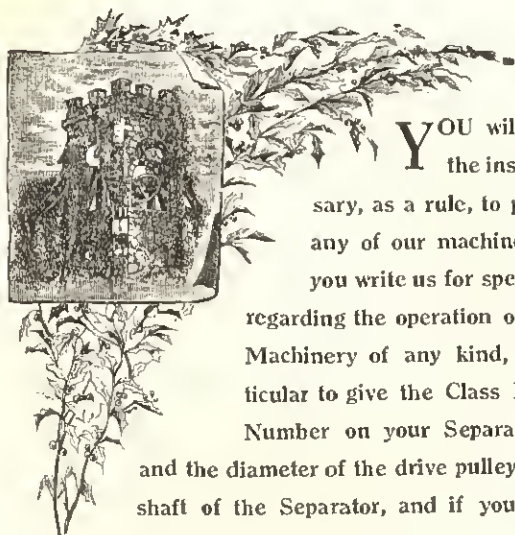
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To The Purchaser



YOU will find herein all the instructions necessary, as a rule, to properly operate any of our machinery, but should you write us for special instructions regarding the operation of "Peerless" Machinery of any kind, always be particular to give the Class Letter and Shop Number on your Separator and Engine and the diameter of the drive pulley on the cylinder shaft of the Separator, and if you are using any other make of Engine to our make of Separator, please give the name of the Engine, the diameter of the fly wheel and the speed of the Engine.

Also, be careful to give the diameter of the drive pulley on the cylinder shaft of the Separator. Please bear this in mind, as it will often save valuable time.

Yours truly,

Emerson-Brantingham Company

(Incorporated)

GEISER WORKS

WAYNESBORO, FRANKLIN CO., PA.

Directions for Operating "Peerless" Traction and Portable Engines

WHEN THE ENGINE IS RECEIVED

Clean off the tallow, white lead coating and all the dirt on the engine (giving special attention to the oil cups and journals, removing all cinder or grit which has accumulated during transportation), then attach all the fittings to their proper places and see that all the nuts are well drawn up. You cannot go wrong, as no part will fit except where it belongs.

SETTING THE ENGINE FOR WORK

Draw the brake and block the wheels of the Portable Engine, or let them into the ground for a few inches. Turn down the set screws on the spring boxes on the hind axle of the portable engine, enough to relieve the spring of the weight of the engine, and draw up the set-screw (with handle) on the side of the king-post above the front axle. This will prevent shaking and rocking of the engine on its springs while in motion. Never fail to turn up the set-screws on the spring-boxes and loosen the screw in the king-post before moving the engine on the road. In starting a new engine examine all bearings frequently. New bearings are liable to heat, which will cut and injure the surfaces and ever afterward give trouble. Should the bearings be allowed to get too loose, they will knock or pound; if too tight they will heat. See that all bearings are properly adjusted, remembering that a new engine requires more strict attention the first few days than after the bearings are worn smooth.

FILL THE BOILER WITH WATER

to the second gauge-cock, or about three inches in the glass gauge. Never use muddy water if it can possibly be avoided and never put cold water into a hot boiler. Nothing ruins a boiler quicker.

FIRING THE BOILER

Never start the fire until you have tried the gauge-cocks and are sure that the water is at proper level. When the fire is well started and the steam begins to rise, spread one or two shovelfuls of coal evenly over the entire grate surface. If you are then ready to have steam quickly, open the blower-valve, so as to force the draft until the required pressure is obtained. Fire often, putting in only a small quantity of wood or coal at a time, as heavy charges of coal or wood check the heat and interrupt proper combustion, causing much smoke and great waste of fuel; also causing the boiler to steam slowly. Remember the more complete the combustion the greater amount of heat is obtained from the fuel. In order to have a good fire you must, in all cases, have all parts of the grate covered.

When the engine is running, do not allow the fire door to remain open longer than necessary to put in the wood or coal, as the strong draft caused by the exhaust, will draw a large quantity of cold air through the tubes, which chills the boiler and often causes the tubes to leak. If the boiler is generating steam too rapidly close all dampers and open the smoke-box door.

When using anthracite or hard coal, the bed of coal should never be more than three or four inches thick, adding a small quantity at a time, evenly distributing over the fire, so that there be no openings through which the cold air can pass. This will give the best results.

When using bituminous or soft coal, keep the bed of coal at the end of fire-box next the tubes as thin as possible, just so the grates are covered. At the back end keep it full. Never throw the coal to the front end, but drop it just inside the fire-door. This will make the combustion more complete and prevent the partially burned coal being drawn into and through the tubes. A little practice will enable you to fire with little coal and less smoke.

When wood is used extensively as fuel, it should be packed in the fire-box as closely as possible to prevent an excess of air rushing through the grates, cooling the boiler, interfering with the completeness of the combustion and lowering the temperature of the furnace. We have "dead" plates which, if placed on top of the grates, reduce the openings through which the air must pass, thus assisting greatly in making firing with wood a success. They must be especially ordered if wanted.

KEEPING STEAM

The conditions under which a traction engine is used are so varied that it is impossible to lay down specific rules for its management. The following points will, however, apply under all conditions:

First—Any boiler forced beyond its capacity will steam hard.

Second—The amount of power developed by the steam from a certain boiler, depends upon the efficiency of the engine by which the steam is used.

Third—The cause of hard steaming therefor, may, in some cases, be owing to undue wastefulness of the engine.

Fourth—Any engine is wasteful when its piston, its valve, its relief valve and stuffing boxes allow a considerable leak of steam, or when its back pressure is higher than needed for proper draught making.

Fifth—In all properly designed engines using an exhaust nozzle, the back pressure is controlled by the size of this nozzle; the smaller the nozzle the higher the back pressure.

Sixth—The strength of the draught induced by the steam rushing through exhaust nozzle, depends upon the size of this nozzle, the smaller the diameter of the nozzle the stronger the draught.

Seventh—As high back pressure is objectionable the nozzle used should be as large as is compatible with the strength of the draught needed to effect the proper rapidity and completeness of the combustion.

Eighth—When the load on an engine is increased the strength of the draught increases in a more rapid proportion than the load. A larger exhaust nozzle ought therefore to be used when an engine is working under a heavy load than when the same engine is under a light load.

Ninth—The nozzle should often be examined to see that it is not gradually closing up with soot and cinder which under the influence of heat and steam have a tendency to cement themselves in the nozzle.

Tenth—the nozzle should be so set that the direction of the steam jet shoots up parallel with and right in the center line of the stack. If

set crooked the steam jet will strike the side of the stack and the draught induced will be weak and unsatisfactory.

Eleventh—The report of the exhaust should be sharp, well-defined and of the same strength and character for the two ends of the cylinder. If one exhaust puff is strong and the next one weak, the valve is set wrong, and must be reset, or the cylinder has a bad leak at one of its ends. If the exhaust has a long drawn-out blowing sound the exhaust connection is either clogged up somewhere, or the nozzle used is entirely too small, or a bad leak exists in the engine. In either case the back pressure is greatly increased above the proper point, the draught is too strong, the consumption of water and fuel is out of proportion with the useful work done, and it becomes difficult or impossible to keep the steam up. In this case a larger nozzle must be used, or if this change does not improve conditions the whole exhaust connection, including the canal in the smoke-box door frame, must be examined and the engine thoroughly tested in regard to leaks.

Twelfth—A dirty clogged-up spark arrester obstructs the draft and makes the boiler steam hard. Keep spark arrester clean. In case of not having sufficient draft when using style "D" spark arrester, there is a ring inside of stack at top which can be removed by taking out three bolts.

Thirteenth—In order to make possible a perfect control of the air admitted to the fire-box the ash pan doors, the fire-box and the smoke-box door must not be allowed to become loose and leaky.

Fourteenth—Any boiler will steam hard if its flues are dirty, if its heating surface is coated with scale, and if the sediment in the water leg is not washed out. It is of the utmost importance to keep the boiler clean. Boiler compounds should be avoided and used only upon the recommendation of a reliable chemist.

Fifteenth—Keep the boiler pressure as near the blowing-off point as practicable. In case of reversible engines keep the reverse lever as close to the center notch of the reverse quadrant as possible. A high steam pressure and early cut off which is secured by above position of the reverse lever, are conducive to economy in the water and fuel consumption. It is important that this rule be followed.

Sixteenth—Do not use too high a water level in your boiler. 2 to 3 inches in the glass is sufficient when the boiler stands level. Too much water in the boiler causes a waste of fuel and water on account of the steady drain of heated water which for such conditions is carried along with the steam on its way to the cylinder.

CLEANING THE FIRE, ASH PAN AND TUBES

To clean the fire, run the poker over top of grate and the ashes will fall through. If there are any large clinkers they can be removed through the fire door.

Clean the ash-pan often. Never allow the ashes to accumulate under the grate bars as they not only impair the draft, but also burn out the grates.

To clean the tubes, draw the tube-scraper back and forth through them. This must be done at least twice a day to prevent them coating with soot, which would be very hard to remove. The smoke-box must also be kept clean. The cleaner all these parts are kept the less fuel will be required.

TO CLEAN OUT THE BOILER

The boiler should be emptied frequently (at least once a week). This should be done after the engine has been moved, which shakes up and loosens the mud or dirt, allowing it to run out with the water. Blowing out at a high pressure will not accomplish this.

Remove the brass plugs from the corners or the hand hole plates at the side of fire box, as the case may be, and with a small scraper much of the dirt can be removed; then wash out thoroughly by forcing water with the pump and hose through all parts that can be reached.

This is very important and if closely observed will prevent the sides from becoming overheated, which is always the cause of the sides of the fire-box warping.

BLOWING OUT

Blow down the water in the boiler a few inches every day. Boilers must not be emptied while hot, as the flues and fire-box retain sufficient heat to bake deposits of mud into hard scale that becomes firmly attached to the surface.

Many engineers suppose that blowing out a boiler under heavy pressure has a tendency to remove these deposits, but experience has shown this to be a grave mistake.

LOW WATER

In case of low water (which can only occur through negligence), open the furnace and smoke-box doors, close the draft at ash pan as quickly as possible; then cover the fire with ashes; or if no ashes are at hand use earth or fresh coal—anything to cover the fire quickly and thus prevent the crown sheet from becoming overheated; then start the injector or pump, or both, just as quickly as possible.

Never attempt to remove a hot fire when the water is low, as stirring only increases the heat. Should the soft plug melt out of crown sheet, close the draft door to ash box and the fire-door tight, so that the steam will put out the fire quickly.

Never pour water into the fire-box while there is fire in it, as the sudden contraction of the plates in contact with the water may injure your boiler.

THE FUSIBLE PLUG

If the water should become low (so as to uncover the crown sheet), the fusible plug will melt out and stop operations. This is to avoid any danger of damaging the crown sheet. This plug should be removed once or twice a year as scale may so completely cover it in time that the plug may melt and yet the scale may prevent it from blowing through. But if the water is kept up in the boiler, this plug will never blow out.

To replace the plug in the Portable Engine, open the hand hole above the fire-door. Drop the plug (a duplicate is furnished with each engine) into the hole in crown sheet, drive down with a hammer, and replace the hand-hole plate as before. In Traction Engines the fusible plug can be replaced by unscrewing and removing from the crown sheet, the brass plug into which the fusible plug is driven.

After the fusible plug is driven into the brass plug, the brass plug is again screwed into its place.

The plug can be removed and replaced through the fire door opening.

IN CASE OF FOAMING

close the throttle and keep closed long enough to show true level of water; if that level is sufficiently high, feeding and blowing out will usually suffice to correct the evil. In case of violent foaming caused by dirty or impure water, the water in the boiler should be lowered an inch or two every few hours, by opening the blow-off cock near the bottom of the boiler and again pumping up to a proper level.

SMALL LEAKS

n boilers can easily be stopped by mixing about a peck of shorts in about one-half barrel of clean water and pump it into the boiler while the engine is running with a high pressure of steam.

GAUGE COCK, GLASS GAUGE

Keep gauge cocks clear and in constant use. Do not open them too suddenly. Glass gauges should not be relied on altogether.

THE SAFETY VALVE

Try the safety valve at least once or twice a day to see that it is in working order. Do not depend entirely on the steam gauge. Steam pressure ranging from 100 to 160 lbs., according to the class or kind of engine. If the boiler is old, the limit of pressure should be reduced. Should the gauge at any time indicate the limit of pressure allowed, see that the safety valve is blowing off; in case of difference find out which is wrong and rectify it. A small test gauge should be in the possession of every engineer.

TO PRESERVE THE BOILER AND STACK

Never neglect cleaning the outside of your boiler at least once a day. Never paint your boiler. A good plan to preserve the boiler and smoke stack from the effects of rust is to rub them off with a greasy rag. This will keep them from rusting better than paint will, and should be done every day; it takes but very little time, and will give the engine a neat and clean appearance.

OILING THE ENGINE

See that all oil cups are in proper condition to receive the oil, being equipped with wicks or wool according to their different construction. Fill all the oilers with the best heavy engine oil, and be sure not to miss any of the oil cups or oil holes. Fill the cylinder lubricator with the best cylinder oil, and when the engine has started to run do not fail to see that the cylinder oil is fed in regularly and in proper quantity. Neglect in this respect results in a badly cut cylinder, piston ring, valve and valve seat. It is especially important that piston valves are kept lubricated. A dry piston valve is liable to stick, causing breakage in the valve stem connections. Never use any but the best of oil. Never use lard oil or any oil of too thin a consistency.

GREASE THE GEARING

Keep all the cog-gearing and front axle skeins well supplied with axle grease to prevent cutting. The compensating gear may be taken apart by removing the right-hand driving wheel.

PACKING THE ENGINE

The piston rod, valve rod and pump plunger require to be packed from time to time as the old packing wears or burns out. This is easily done by unscrewing the caps on the stuffing boxes and with a hooked wire pulling out the old packing, then fill the stuffing boxes with good hemp packing twisted into a cord the size of space around the rod. Oil it well before putting it in. Do not draw the caps up tight, better have them loose, so that a little water will leak through; this will keep the packing moist and in good order, and will not cut the rods. Never let your engine be out of use for a few days at a time without removing the packing, as the moisture in the packing will rust the rods. Loosen the packing nuts in cold weather to prevent freezing.

STARTING THE ENGINE

Open the cylinder cocks before starting the engine. Then open throttle valve slowly, leaving the engine gradually obtain its full speed. Close the cylinder cocks after all the water is expelled from the cylinder. After engine is shut down, open the cylinder cocks again; leaving them in this position. See that nothing in the throttle rigging prevents this valve from being fully opened.

TO REGULATE SPEED OF ENGINE

The governor regulates the speed and uniformity of motion of the engine. The speed can be increased or decreased by the "speeder" which forms a part of the governor. The uniformity of motion is impaired the more the speeder departs from its normal position. A considerable change of speed of the engine can only be effected by a change in the diameter of the pulley on the governor shaft. We do not guarantee our engines unless they are allowed to run at the speed recommended, and arranged for by us. Never allow the governor belt to become too slack or the governor valve-stem stuffing box to be too tightly packed.

HOW TO ADJUST THE ENGINE

Peerless engines are equipped with three different styles of adjustable boxes. These are key adjustment, adjustment by set screw and adjustment by removal or insertion of liners. In the first two adjustments be careful not to force the key too hard or to draw the set screw too tight. For boxes adjusted by the removal of liners, the cap of the box must be taken off before the liners are accessible. After the cap is removed take out one or more of the liners according to the clearance to be compensated for. Replace the cap and draw the cap bolts tight. If the journal is now held too tight insert a paper liner or if the journal still has too much play in box remove more liners. Keep on this way until the journals run free and yet without more play than about the thickness of common writing paper. A box adjusted to this nicety will not knock or heat if properly oiled. The connecting rod for the cross-head pin on some of our engines, is adjusted by the insertion of liners.

In adjusting the boxes proceed as follows: Remove the nut on the outside face of the connecting rod, push the bolt back and with a crooked wire or the point of a knife blade, draw out the book of liners which is interposed between the box and the push face of the connecting rod. Insert in this book as many leaves of writing paper as are needed to make the book fill the space between the box and the push face of rod. Do not make the book so thick that it cannot be put in place without forcing. The use of a hammer in replacing, spoils the book and is liable to result in too tight an adjustment. The eccentric guide should always be kept properly adjusted to the eccentric. This refers to traction engines only. If this is not attended to the reverse arrangement is exposed to unnecessary wear. This adjustment is effected by the tightening up of a nut which on engines Classes Q, R, RR, S, T and TT, is located on the outside face of the crank disc and which on class X is to be found on the outside face of the disc which carries the eccentric. On engines U, UU, and Z, liners are inserted under the nuts which appear on the outside face of the eccentric carrying disc. By removing the liners the desired nicety of adjustment can be effected.

On class ZZ provision is made for adjusting all parts of the Reverse.

On classes X, U, UU, Z and ZZ engines provision is made to take up the end play of the sleeve on the engine shaft which by means of attached links, controls the position of the eccentric in its guide. Against one end of the sleeve are liners, and the removal of the proper number of these liners will take up any existing end-play.

HOW TO SET THE VALVE ON PEERLESS REVERSING ENGINES CLASSES Q, R, RR, S, T AND TT

Turn fly wheel until crank pin is about 2 inches above dead center line towards engine platform. Make a center or prick punch mark on engine bed near crank disc. Place the point of a pair of dividers, or compasses, in mark on engine bed, make a scratch on crank disc with free end of dividers, also make a scratch at end of cross head on guide. Now turn the crank pin below the dead center line until the cross head returns to mark on guide just made. Then make a mark on disc with compass, as before, from center mark in bed and then make a mark half way between the two marks on disc. Place one end of the compass in mark on bed. Turn crank pin toward center line until free end of the compass enters half way, or center mark, on the disc. The crank pin will then be on dead center. Be careful not to move the distance of the compass after once set to make first mark. If moved to make half-way mark on disc, be careful to set as before by measurement. To locate the opposite center, repeat the same operation. Then leave engine on dead center, take off steam chest cover, take out relief valves and hold tallow candle at end of valve to be set. Look upwards through relief valve holes towards candle at end of valve, then adjust valve with nuts at valve cross head until you have 1-32 to 1-16 inch opening. Tighten nuts well at cross heads, then turn engine on opposite center. Bring center mark to compass as before and if the lead is not the same divide the difference by trying first one end and then the other, bringing center marks to distance of compass each time. By following the above your valve will be properly set.

For Classes X, U, U2, U1, U12, UU, UU2, Z, Z1, ZZ and Z3 engines follow the same instructions, except give the lead on the inside edge, or center of valve instead of the end, as this class of engine takes the steam from the center of the valve and exhausts at the ends.

The above instructions apply to slide valves also.

An intelligent engineer may put his engine on the dead center by eyesight instead of going through the above operation, being careful to turn the engine in the same direction to take up lost motion. Old engines should have the valve examined, as wear in the eccentric line changes the lead.

HOW TO REMOVE KNOCKS IN RUNNING OF AN ENGINE

First—Knocks in an engine are produced by so many different causes and conditions that it is impossible to lay down rules covering the whole field. Some knocks are very hard to locate and their causes difficult to find. The rules below if closely followed will, however, prove effective in removing the trouble in the majority of cases.

Second—One of the principal causes of knocks is too much play in the bearings occasioned by negligence to attend, at the proper time, to adjustment of the parts. This should be done as nearly as possible without causing heating.

Third—Take up all end play of shafting, pins, collars and sleeves. This is especially important in regard to the engine shaft and crank pin.

Fourth—See that the nut which locks the cross-head to the piston rod is very tightly drawn.

Fifth—See that the valve is properly set and that it has no end play on its stem.

Sixth—See that the piston rings have no end play in the grooves of the piston, and that they overlap the counter bore at each end of the cylinder equally at each of the "dead point" positions of the piston, also see that where piston followers are used they are tightly clamped to the body of the piston.

Seventh—If the engine is equipped with cross-head pump see that the pump barrel is tightly clamped to its support, and that the plunger passes through the stuffing box without rubbing hard against the side.

Eighth—See that the relief valves are in proper place and kept from making noise by the springs provided for this purpose.

Ninth—See that all stuffing boxes are properly packed, but not drawn too tight.

Tenth—See that the frame work of the engine is tightly bolted together and tightly bolted to those brackets which form the connection between this frame work and the boiler.

Eleventh—In going over the adjustments of the engine do not overlook any of them and take special pains to get a neat adjustment between the eccentric guide and the eccentric. If this adjustment is made too close, however, it becomes impossible or difficult to operate the reverse lever.

Twelfth—See that none of the moving parts strike each other or any stationary parts, thus producing a knock. Also be sure that any noise caused by oscillation of the engine and boiler as a whole, and emanating from part outside of the engine proper, are not attributed to the engine.

Thirteenth—See that the oiling arrangement for every part is in good order and well supplied with oil and particularly that the cylinder lubricator is working properly.

Fourteenth—After the directions above have been conscientiously followed, open the throttle and leave the engine run. In the majority of cases it will now run smoothly without knock or noise.

Fifteenth—If the knock still continues its causes are of more exceptional nature and its removal can only be effected by a special intelligent study of the case in question.

Sixteenth—A general rule for proceeding in such cases is to eliminate, temporarily, all knocks in the reverse arrangement and the cross-head pump, by the locking of the eccentric and the removal of the pump plunger. If this stops the knocking in the whole engine it is plain that it was caused by either the pump of the reverse arrangement. By loosening the eccentric and running the engine with the pump plunger removed, and by replacing the pump plunger and running the engine with the eccentric locked, the exact location of the knock may finally be determined. If the piston knocks in either of its "dead point" positions turn it about half a revolution in such direction that it moves further from that end of the cylinder where the noise is heard. If this seems to help keep on turning until the knock stops entirely. This refers to pistons which have previously been set and consequently the knock is not caused by the piston striking either of the cylinder heads.

HOW TO REMOVE VALVE BUSHING

For engines equipped with piston valve, we furnish special means for the removal of the valve bushing. These consist of a long bolt and two washers. They are packed in the tool box. The first operation when the bushing is to be taken out, consists in removing the lid on end of steam chest, and also the steam chest cover on engines using such cover. Next uncouple the valve stem connection and pull the valve and stem out through the hole from which the lid has just been removed. Then apply the bolt and washers. Place the small washer against the smaller inner end of the bushing, the larger washer against the face end of steam chest, and place the bolt so as to connect the two washers. When the nut of the bolt is drawn up, the bushing will be forced out. For engines not equipped with steam chest cover the inner end of the bushing is not directly accessible. For such engines the small washer should first be slipped on the bolt, then with the washer in an oblique position to the bolt, the two together should be pushed through the inside of the bushing. When the washer has reached the end of the bushing it should be squared up on the bolt and laid up against the end of the bushing. The larger washer is then applied at end of steam chest, nut of bolt drawn up and bushing forced out as above stated.

BEFORE SETTING ENGINE ASIDE

pour one-half pint of oil into the cylinder by removing the oiler over the governor base and turn the engine four or five revolutions.

MANAGEMENT OF THE CROSS HEAD PUMP WHEN USED

Should the pump fail to work, open the overflow valve, and if hot water comes out, the difficulty may be in the check valve, where the

water enters the boiler. In this case close the stop-cock at the boiler where the check valve is, and unscrew the cap over the check valve; take out the valve and clean the seat and the valve of any dirt, and replace them again, after which open the stop-cock again at the boiler, which is so constructed that it is impossible to close the passage for the water from the pump to the boiler without opening another passage for its escape, the valve operating alternately between the two opposite seats, the one being a waste passage or overflow, and the other an opening direct to the boiler.

It is also intended as a means of ready access to the check valves for examination, when necessary, while steam is up in the boiler, and for drawing hot water from the valve when required.

If the pump still fails to work, remove the valves from the pump chamber and also the check valve at the boiler. After replacing the caps again open the check or stop valve at the boiler and allow the pressure to force the water back through the pump and all pipes to the tank, thus removing all dirt or other obstruction. Now plug entrance to suction pipe; this will indicate any leaks in water pipes between the pump and tank.

Always keep the strainer on the end of the suction hose clean. *See that the suction hose is properly put on so that it does not leak air* which sometimes causes the failure of the pump to work. Never depend entirely upon the glass water gauge, but try gauge-cocks often.

If steam pump is used it is important to keep pump well oiled to work properly, always drain pump in cold weather to prevent freezing.

TO DRAIN PUMPS AND PIPES

Close supply valve at tank. Close check valve at boiler. Open pet cock in pipe at tank and at check valve. Now run engine and pump the water out of the pipes.

TO DRAIN INJECTOR AND PIPES

Open pet cock at check valve. Close water valve at injector. Open steam valve at injector and allow steam to pass through and drive the water out through the pet cock at check valve. After the water has all been driven out, close the valve in steam pipe at dome and open all other drains including the two valves on injector. For operating the injector see card in packing box containing full directions.

SCREEN ON PIPES

See that the screens on supply pipes in tank are kept clean; never blame a pump or injector for not working when the screen is so clogged it cannot get water through.

Directions for Setting and Operating THE "NEW PEERLESS" THRESHERS

Read these Directions While with the Machine.
Remember They Do Not Apply to the "Geiser."

SET THE MACHINE LEVEL

If the machine is not level it will not perform its work well and if a weigher is used it will not weigh accurately when out of level.

The jack in the tool box, of the A and AA Separators, is to be used on the driving side of the machine to offset the pull of the main drive belt. Place one end of the pipe over the nut on the bolt that holds skein on front axle and the end with socket over the nut on under side of sill, then, with a wrench, turn it up tight.

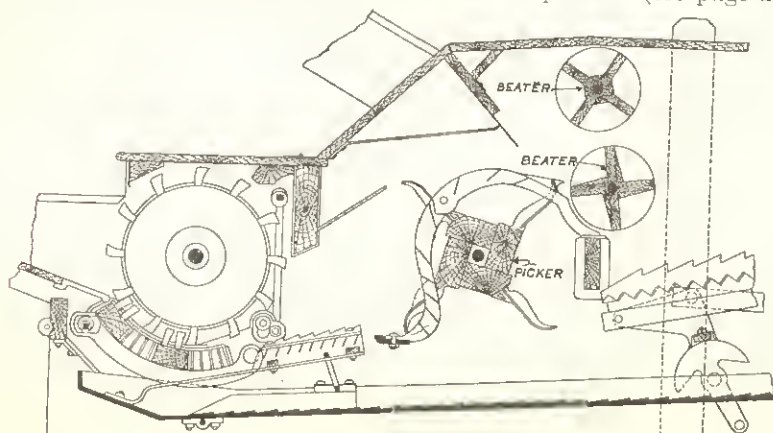
Clean out all oil cups and oil holes. Fill oil cups with wool, sponge or cotton waste, and thoroughly oil all bearings before starting machine and see that all nuts are drawn up tight; they should be looked after every day. Keep the belts soft and pliable with oil; and only tight enough to prevent slipping. Be sure that your machine has sufficient motion to do good work.

SPEED OF CYLINDER

For all New Peerless Separators (except Class A-1).

In very dry grain 1000 revolutions per minute are sufficient. *For damp grain* it should have 1100. *For very damp grain that is hard to thresh*, it should have about 1200. The Concaves—For grain easily threshed use all the blanks with one concave in front. If this is not sufficient to make clean work, use two concaves with blanks in the middle. *For grain that is very hard to thresh*, use all the concaves and adjust them front and rear as near the cylinder as possible.

NOTE:—For Cylinder speed of the A-1 separator (see page 27.)*



THE GEISER MFG. CO.

WAYNESBORO PA.

OCT. 4. 02.

NOTE—If it becomes necessary to replace any of the gearing on beater shafts or picker shaft be sure to place beaters and picker in same relation to one another as shown in sketch. To do this, disengage the gearing, by moving out the pinion on pin, and the gear wheel on one of the beater shafts. Then set the picker and beaters as shown in sketch, and place the gear wheel and pinion in gear again and fasten.
Notice position in drawing, of the beater and picker tooth, also portion of upper and lower beater.

"New Peerless" Grain Plate and Roller Cleaner

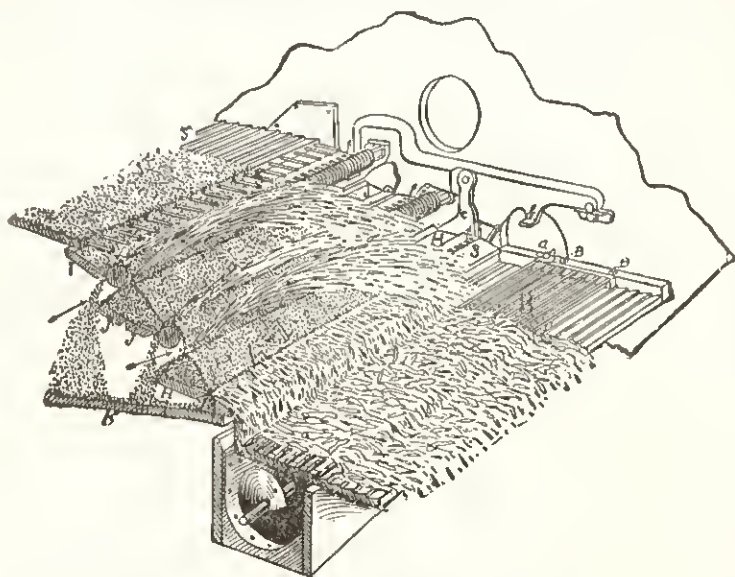


FIG. 1

NOTE:—Letters A, B, C, E and F will be found on outside of machine.

TO CLEAN WHEAT, RYE, ETC.

To adjust the cleaner for *wheat, rye and buckwheat*, push the bar at B in as far as it will go and fasten with thumb-nut. This will stop all jar on shoe. Next slack thumb-nut at E and raise the front half of the upper shelf J (see figure 1) by passing your arm through the round hole in the side of the machine, and again fasten with the thumb-screw at E. Next slack the thumb-nut at F and move the Dividing Bar No. 3 towards the short tooth comb until the points of comb meet the top edge of the Dividing Bar and fasten again with the thumb-nut F. This letter F will be found on the elevátor side of the machine. Next push down the lever at C, so that the shelf J between the upper and lower rollers nearly touches the second or lower roller V. The shoe is now adjusted, and all that is necessary after starting the machine, to do good cleaning, is to adjust the lever at A by first placing the lever near the top of the rack; (see cut page 16) then move lever down one notch at a time, until the grain from the auger is clean. Examine the tailings as they drop into the cylinder, and if you find too much good loose grain in them it is caused either by the lever at A being too low on the rack, giving too much blast on the shoe or in very fast threshing, (3 to 5 bushels per minute), the shelf J is too close to the lower roller V, not giving sufficient room for the grain to pass through, and should be moved back by raising the lever at C a little. Should this change leave heads or sticks in the grain, lower the lever at C a little and move the Dividing Bar No. 3 away from the short tooth comb a little, to give more opening. For wheat and heavy grain, the weight W (see cut on page 16) can be at, or near, the middle of

notched lever N. If the grain is very damp draw out the bar B a little at a time until you have sufficient shake or jar on the shoe to prevent clogging, but no more, as the less jar there is on the shoe the better it will perform its work.

TO CLEAN OATS OR BULKY GRAIN

To clean oats or bulky grain, raise the lever at C so as to make more opening between the shelf J and the lower roller. Next drop the back half of shelf J, by slacking the thumb-nut at E, taking hold of the shelf (by reaching through the round hole in the side of the machine) and again fasten by the thumb-nut at E. In heavy bulky and dry grain containing much filth, it may require the shelf J to be raised a little. Next loosen the thumb-nut at F and move the Dividing Bar No. 3, from the short-tooth comb until there is sufficient room to allow the oats to drop through without allowing sticks or coarse matter to pass through with the grain. If you find too much light oats with the tailings, raise the lever at A (see cut page 16) to give less blast on the shoe and if the oats are not clean of chaff move the lever A down a little to give more blast. The patent Automatic Blast regulator gives a uniform blast on the chaffer, independent of variations of speed of machine while threshing, and should you find the chaffer wasting light oats, barley or light seeds, move the weight on the lever up, little by little, until you find there is no waste from the chaffer.

The rack R, over the tailings auger, should be adjusted so as to carry as much of the coarse matter over the tailings auger as possible without wasting grain. It should not be set so as to entirely cover the tailings auger, only in case of the grain being full of cornstalks, sticks or thistles, as it may carry out unthreshed heads with the chaff.

TO SCREEN THE GRAIN

open the door underneath the screen bottom and turn the buttons in to keep the door open.

TO REMOVE THE CHEAT SCREEN

From all New Peerless Separators (except Class A-1). Remove thumb-nut at F. Then unhook and take out Dividing Bar No. 3. Next slack the nuts on the bolts that hold top board on the screen bottom and pull the board out. Now pull the cheat screen out and replace the board and fasten. Then replace the Dividing Bar No. 3, and fasten with the thumb-nut at F.

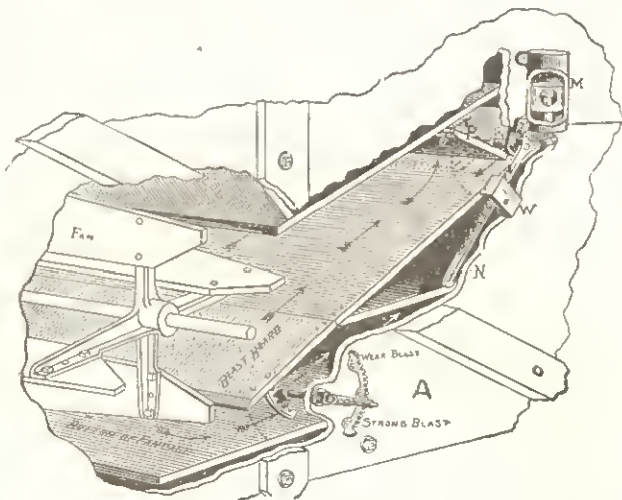
NOTE:—To remove the cheat screen from Class A-1 Separator, slack the nuts on bolts that hold Bar K, and top board on screen bottom and remove Bar K and top board. Then pull the cheat screen out, and replace the top board and Bar K and fasten.

BLAST BREAKER-D

Should the cleaning fan draw in straw, tilt Blast Breaker D back and forth to its extreme movement to prevent clogging the Air Chamber.

“New Peerless” Blast Regulator

The Letter “A” referred to will be found on the machine.



The above cut explains the general arrangement of our patent blast regulator. P is the blast valve to the automatic regulator. W is the weight which is moved up for light blast and down for strong blast on notched lever N. M is an air cylinder containing a piston which is connected by a short rod to the short end of lever N. This piston prevents the lever N with the weight W from oscillating too suddenly.

The lever at A raises and lowers the blast board as shown, which changes the direction of the blast and increases or decreases the amount of blast on the shoe. When moved up the blast on the shoe is weaker; when moved down it is stronger.

TO CLEAN AND BEARD BARLEY

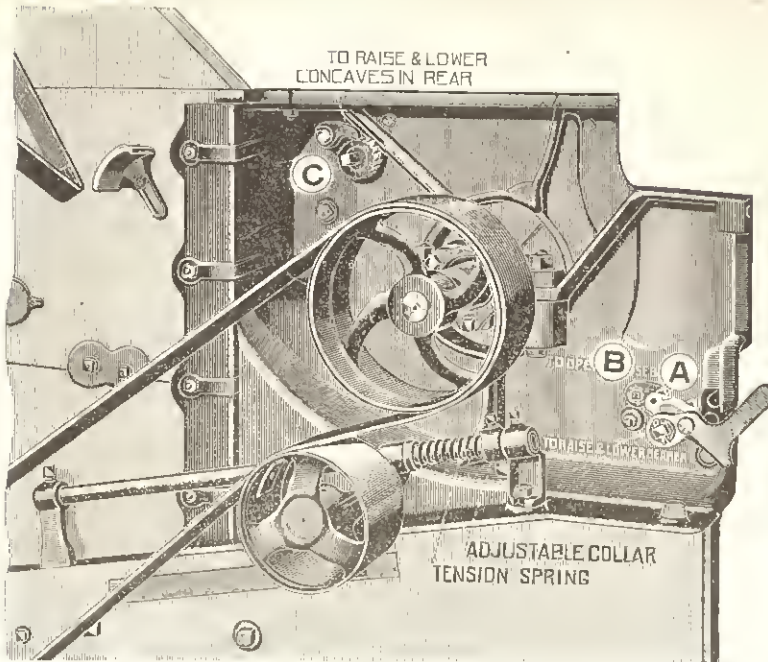
Barley is cleaned the same way as oats (see page 15), except more blast is required and less space between shelf J and lower roller. To beard the barley, push down the lever at C, as low as it will require to carry all the unbearded barley into the tailings auger to be returned to the cylinder again.

TO CLEAN FLAX

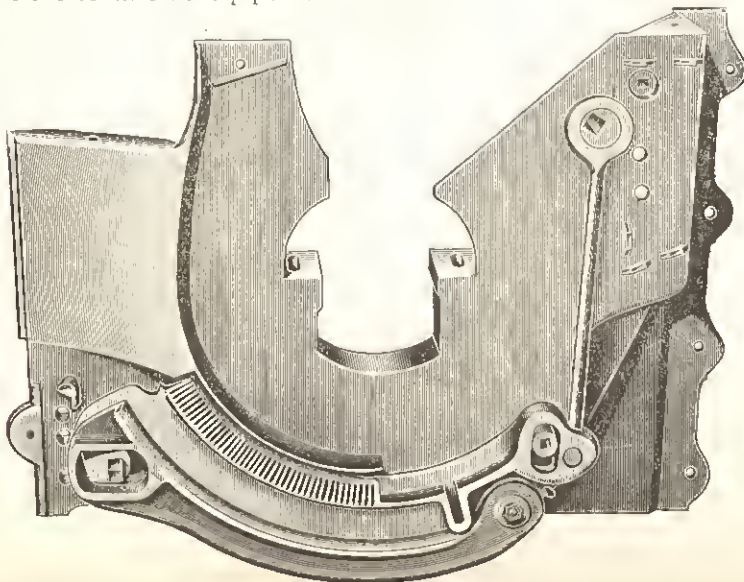
On the regular Roller Cleaner adjust the shoe the same as for wheat, (See page 14), but for Flax containing weeds and green bolls the Flax Attachment is required (See pages 31 and 34). Note—Should the upper beater wrap, slack the set screws and take it out.

TO CLEAN MILLET

Move the lever at C down to close the space between the shelf J and the lower roller, and regulate the blast at lever A to suit, but for cleaning German millet, see page 33.



To raise and lower the Concaves, keep the spring latch in hole marked "A" (See above cut). To remove the Concaves, place the spring latch in hole marked "B" then pull the lever forward. This turns the eccentric and will open the bearers as shown in cut below. After replacing the Concaves, keep the spring latch in hole marked "A", this locks the bearers. To raise or lower Concaves at the rear, turn the ratchet at "C" (See above cut). To add tension to the belt tightener, move the collar on the pipe down and fasten.



This cut shows inside of threshing side and the Concave Bearer.

FOR THRESHING SOFT PEAS AND SOFT BEANS

On the "New Peerless" Wheat Machine with Wheat or Rice Cylinder or on the "New Peerless" Rice Machine.

Parts required for Class AA and A:

- One pulley No. 9244 to go on cylinder shaft for belt to the engine.
- One pulley No. 9245 to go on cylinder shaft, to drive cleaning fan.
- One pulley No. 6414 to go on fan shaft on tailings elevator side.
- One pulley No. 9215 to go on cylinder shaft to drive wind stacker.
- One pulley No. 9246 to go on cylinder shaft to drive feeder.
- One pulley No. 7205 to go on cylinder shaft to drive baler.
- One wood strip to raise sheaf table to clear drive belt.
- One piece fan belt 12 in. long by 5½ in.
- One piece of wind stacker belt 20 in. long by 5 in.
- One piece of feeder belt 12 in. long by 5 in.

NOTE—For machine with Wheat Cylinder, order: one front concave filled with No. 44 teeth.

Parts required for Class B-1, C-1, D and E, with cylinder shaft 1½" diam:

- One pulley No. 8745 to go on cylinder shaft for belt to the engine.
- One pulley No. 8984 to go on cylinder shaft to drive cleaning fan.
- One pulley No. 4723 to go on fan shaft on tailings elevator side.
- One pulley No. 9215 to go on cylinder shaft to drive wind stacker.
- One pulley No. 9148 to go on cylinder shaft to drive feeder.
- One pulley No. 7205 to go on cylinder shaft to drive baler.
- One wood strip to raise sheaf table to clear drive belt.
- One piece of fan belt 12 in. long by 5 in. for B-1, C-1 and D.
- One piece of fan belt 12 in. long by 4 in. for class E.
- One piece of wind stacker belt 20 in. long by 4 in.
- One piece of feeder belt 12 in. long by 4 in.

NOTE—For machine with Wheat Cylinder, order: one front concave filled with No. 44 teeth.

Parts required for Class B-2, C-2, B-1, C-1 and D with cylinder shaft, 1⅞" diam.

- One pulley No. 9244 to go on cylinder shaft for belt to the engine.
- One pulley No. 9245 to go on cylinder shaft, to drive cleaning fan.
- One pulley No. 4723 to go on fan shaft on tailings elevator side.
- One pulley No. 9870 to go on cylinder shaft to drive wind stacker.
- One pulley No. 9246 to go on cylinder shaft to drive feeder.
- One pulley No. 9869 to go on cylinder shaft to drive baler.
- One wood strip to raise sheaf table to clear drive belt.
- One piece of fan belt 12 in. long by 5 in.
- One piece of wind stacker belt 20 in. long by 4 in.
- One piece of feeder belt 12 in. long by 4 in.

NOTE—For machine with Wheat Cylinder, order: one front concave filled with No. 44 teeth.

DIRECTIONS FOR OPERATING

Speed the cylinder 400 to 500 revolutions per minute, (see Note p. 19).

Use the front concave only. Fill the balance of the space with blanks. Operate the cleaner the same as for wheat (see page 14), except a little more space is required between the shelf J and the lower roller. Regulate the blast at lever A to suit (see page 16).

NOTE—To obtain the proper speed on thresher cylinder for threshing, Peas, Beans or Buckwheat, the speed of engine must be reduced sufficient to get the speed on thresher cylinder given in directions. This may require change of pulley on governor shaft of engine. For Peerless Engines Classes X, U, UU, U-1, Z and Z-1, order 3" diam. pulley for on governor shafts for either Gardner or Pickering Governors.

For Peerless engines Classes Q, R, RR, S, T and TT, order 2" diam., pulley for on governor shaft, for Gardner Governor and 2 $\frac{3}{4}$ " diam. pulley for Pickering Governor. When threshing other grain the regular governor pulley must be used.

FOR THRESHING BUCKWHEAT, HARD PEAS AND HARD BEANS ON NEW PEERLESS WHEAT MACHINES

Parts required for Class AA and A:

- One pulley No. 4687 to go on fan shaft on tailings elevator side.
- One pulley No. 5704 to go on cylinder shaft to drive wind stacker.
- One pulley No. 5920 to go on cylinder shaft to drive feeder.
- One piece of wind stacker belt 5 in. long by 5 in.
- One fan belt 11 ft. 5 in. by 5 $\frac{1}{2}$ in.

Parts required for Class B-1, C-1, D and E with Cylinder Shaft 1 $\frac{1}{8}$ " diam:

- One pulley No. 5576 to go on fan shaft on tailings elevator side.
- One pulley No. 5704 to go on cylinder shaft to drive wind stacker.
- One pulley No. 5919 to go on cylinder shaft to drive feeder.
- One piece of wind stacker belt 7 in. long by 4 in.
- One fan belt 11 ft. 3 in. by 5 in. for B-1, C-1 and D.
- One fan belt 10 ft. 9 in. by 4 inches, for class E.

Parts required for Class B-2, C-2, B-1, C-1 and D with Cylinder Shaft 1 $\frac{7}{8}$ " diam.

- One pulley No. 5576 to go on fan shaft on tailings elevator side.
- One pulley No. 9872 to go on cylinder shaft to drive wind stacker.
- One pulley No. 5920 to go on cylinder shaft to drive feeder.
- One piece of wind stacker belt 7 in. long by 4 in.
- One fan belt 11 ft. 3 in. by 5 in.

DIRECTIONS FOR OPERATING

Speed of cylinder 725 to 825 revolutions per minute, (see above note).

Use the front concave only. Fill the balance of the space with blanks. Operate the cleaner the same as for wheat (see page 14), except a little more space is required between the shelf J and the lower roller. Regulate the blast at lever A to suit (see page 16).

CRACKING GRAIN

Is caused by the cylinder having too much end play or returning too much grain through the tailings elevator to the cylinder, or the speed of the cylinder being too high for the amount of grain that is fed into it, or the cylinder teeth not passing centrally between the concaves teeth. The end play of the threshing cylinder should be about the thickness of writing paper and the machine should be fed according to the speed of the cylinder. To adjust the end play move the cylinder boxes.

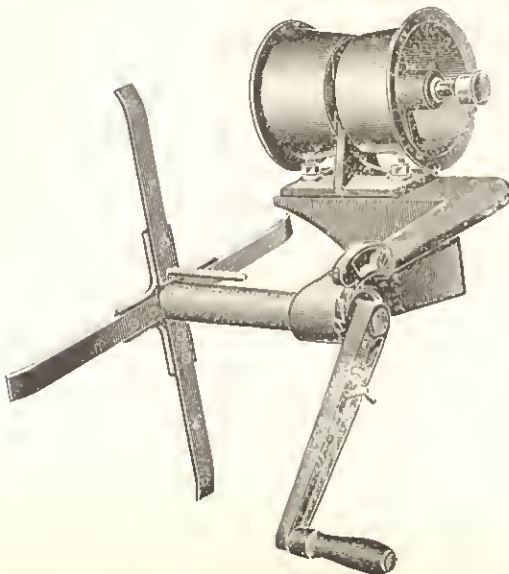
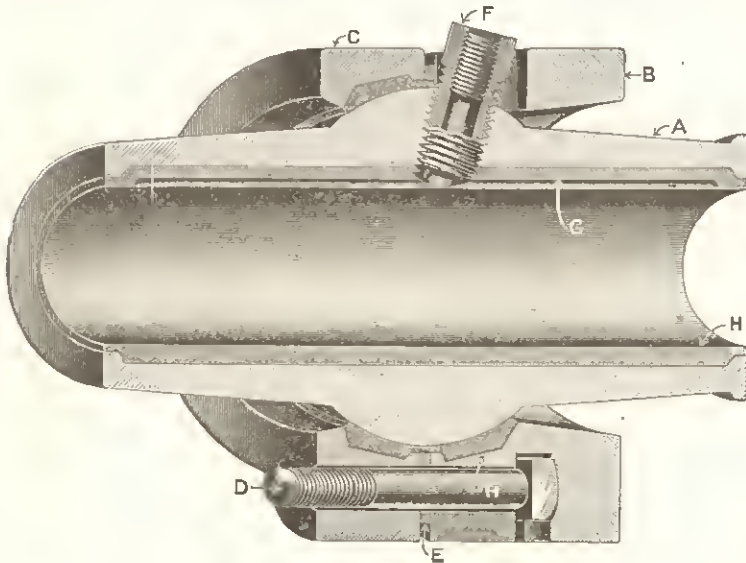
RATCHET IN TAILINGS ELEVATOR

If more tension is required, slack the lock nut, draw up inside nut a little then tighten the lock nut.

Note—The pulley on the Grain Auger must be used on the side opposite to which the grain is delivered from the auger.

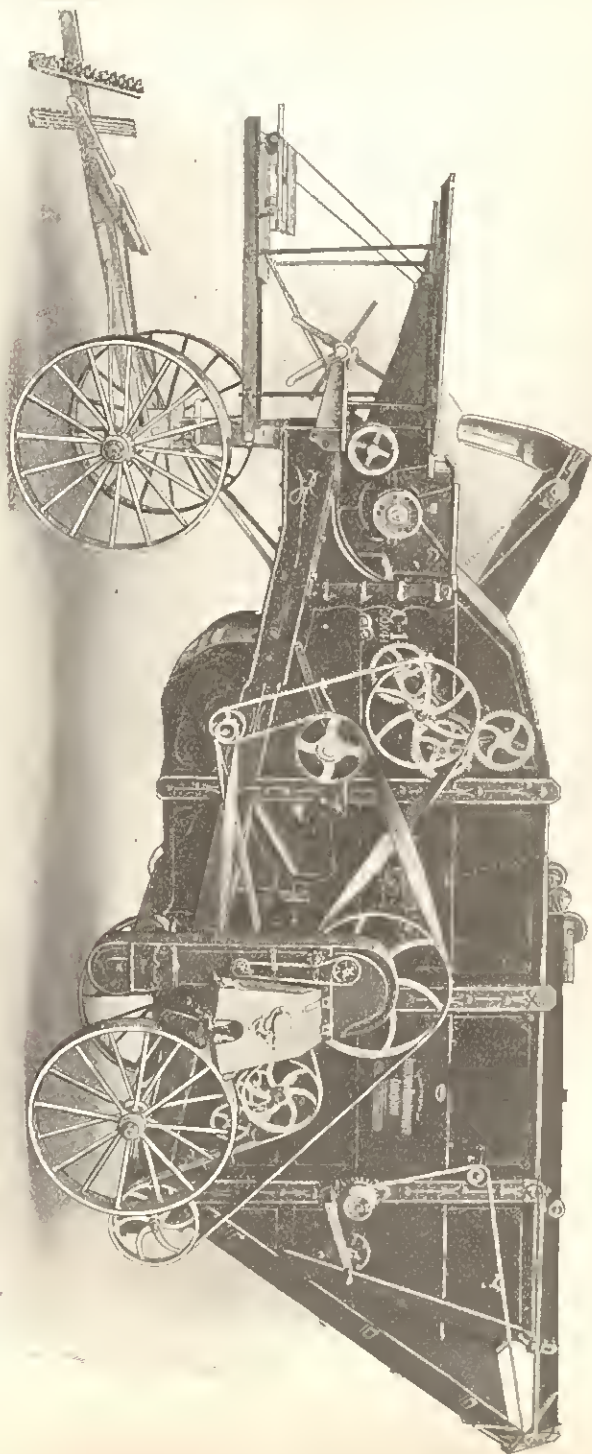
The agitators on rear straw rack can be raised a little if necessary to agitate the straw more thoroughly.

Self-Adjusting Ball and Socket Cylinder Boxes

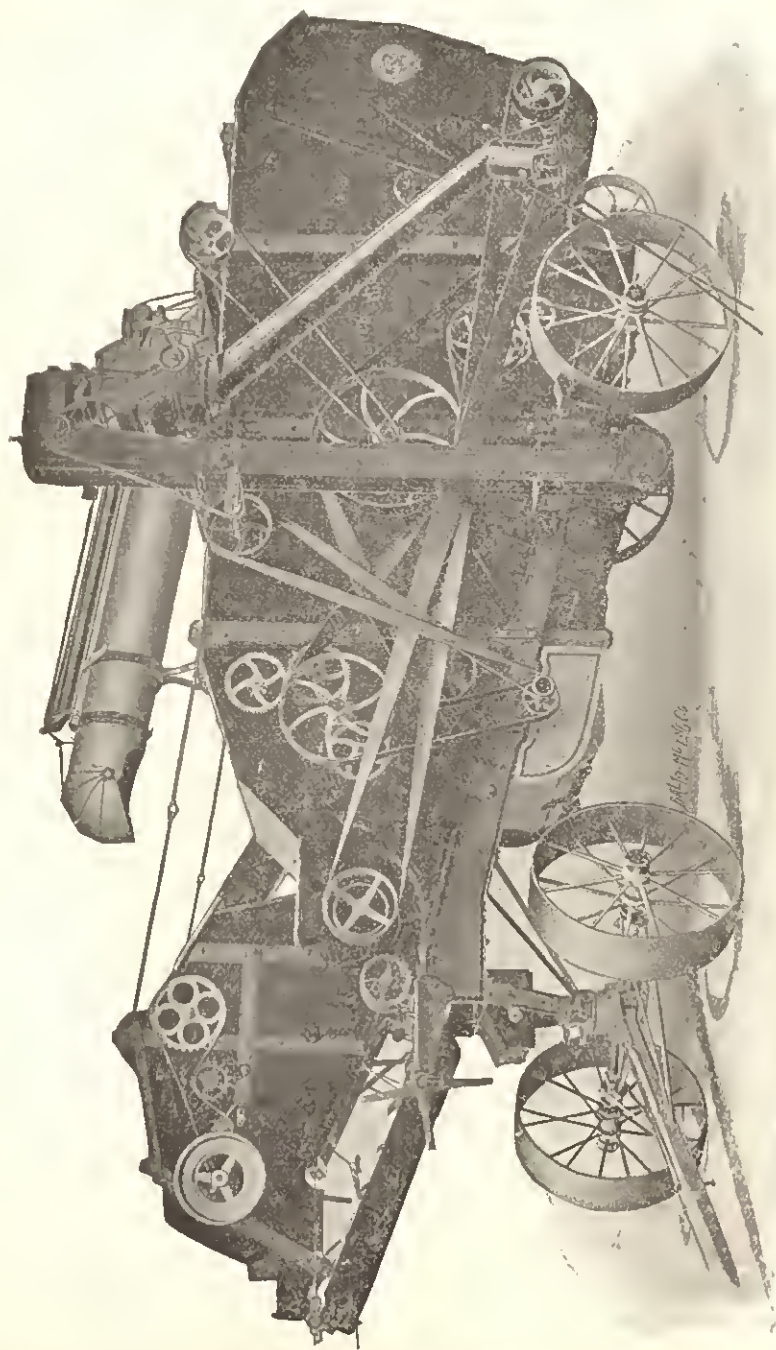


BELT REEL AND GUIDE

To remove the belt reel, press down the spring latch and remove the crank. The belt guide can be adjusted at the two bolts beneath the pulleys. When cylinder pulley above 14 inches diameter is used reverse the belt guide on sill bracket.

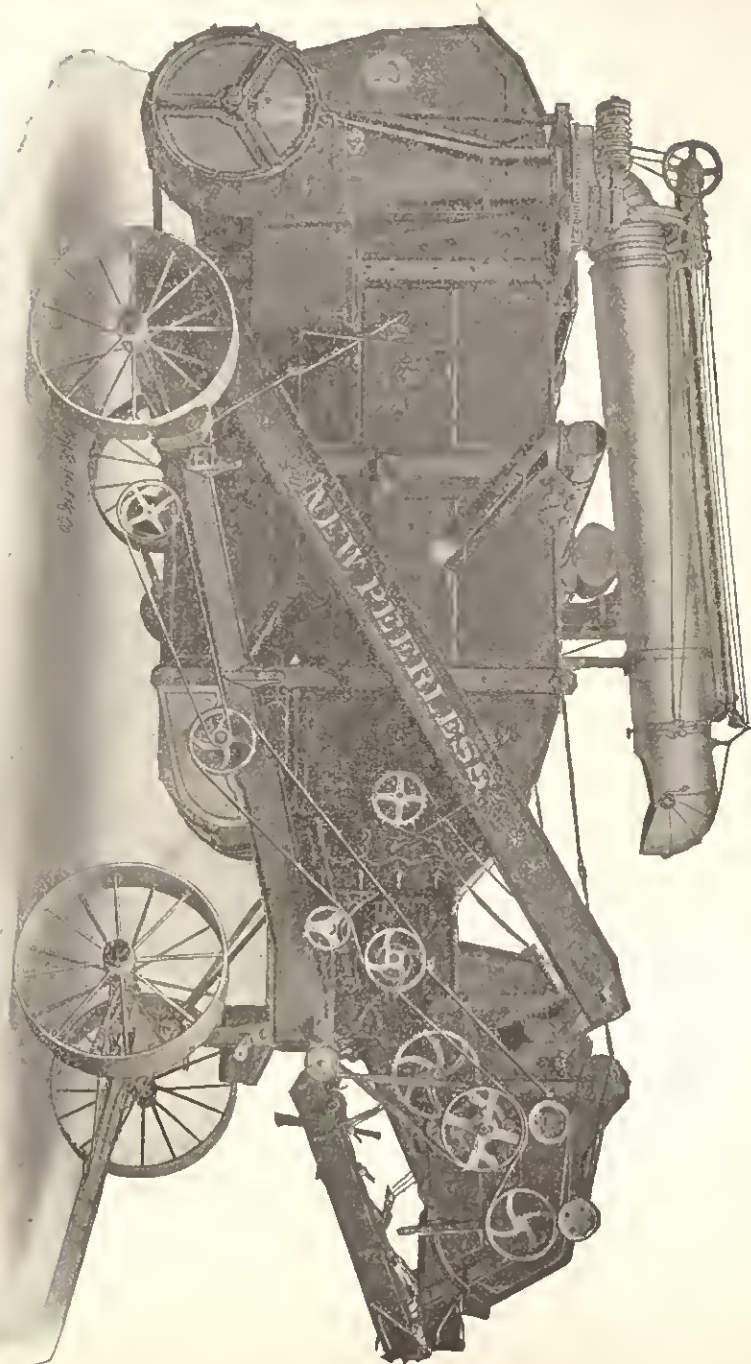


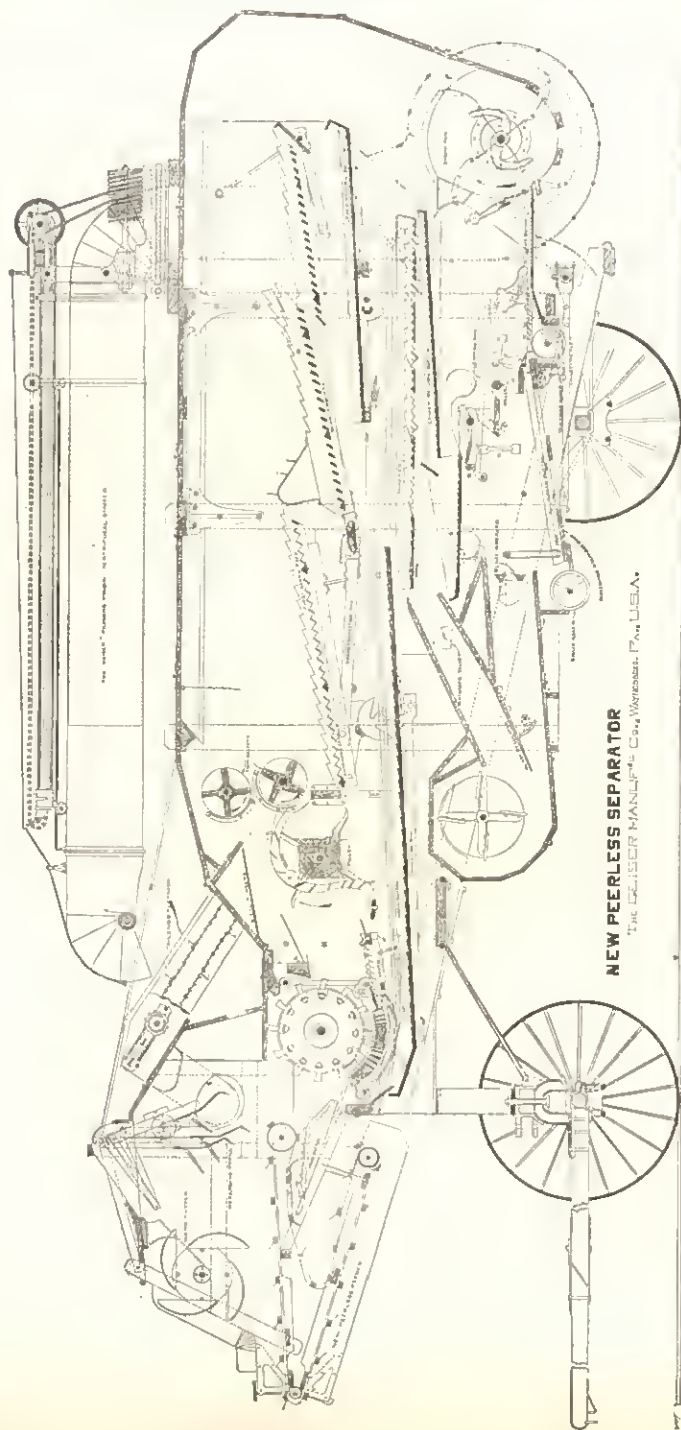
THE "NEW PEERLESS" SEPARATOR, WITH ELEVATING BAGGER ATTACHED
 Showing manner of Belting on Right-Hand Side. The Bagger can be attached on either side.



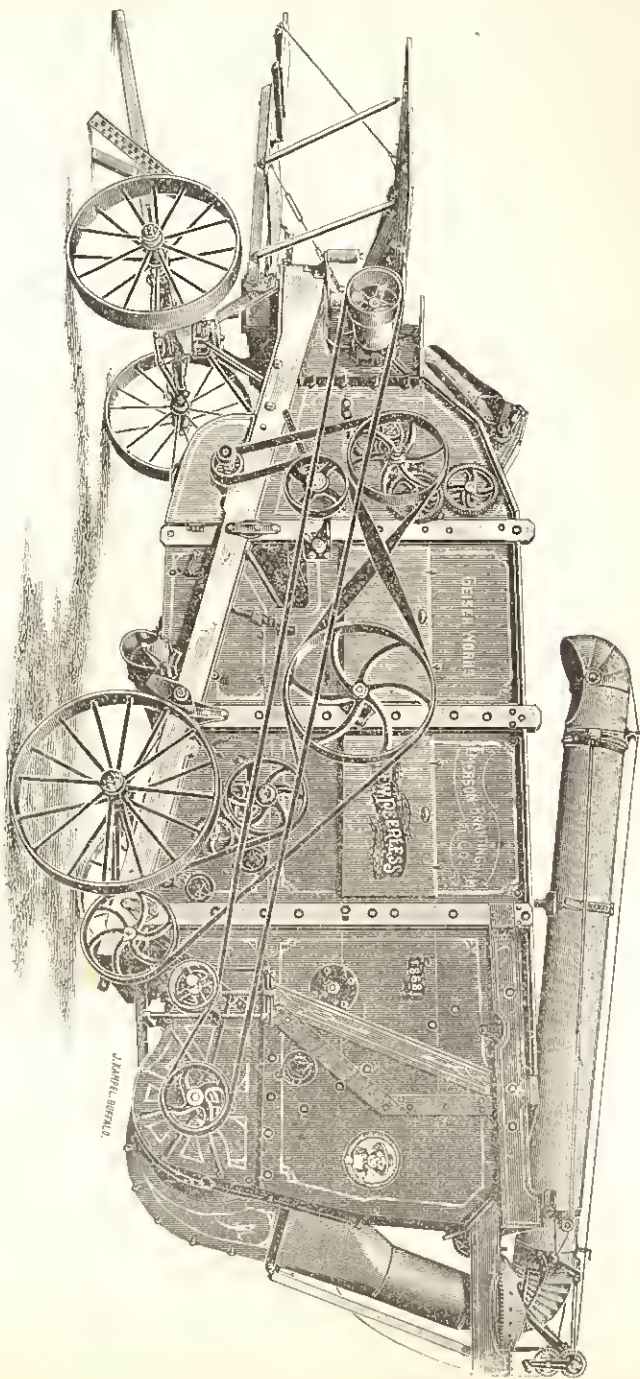
THE "NEW PEERLESS" SEPARATOR, WITH WIND STACKER, FEEDER AND WEIGHER
Showing Manner of Belting on Right-Hand Side.

THE 'NEW PEBBLESS' SEPARATOR WITH WIND STACKER, FEEDER AND WEIGHER ATTACHED
Showing Manner of Belting on Left-Hand Side.



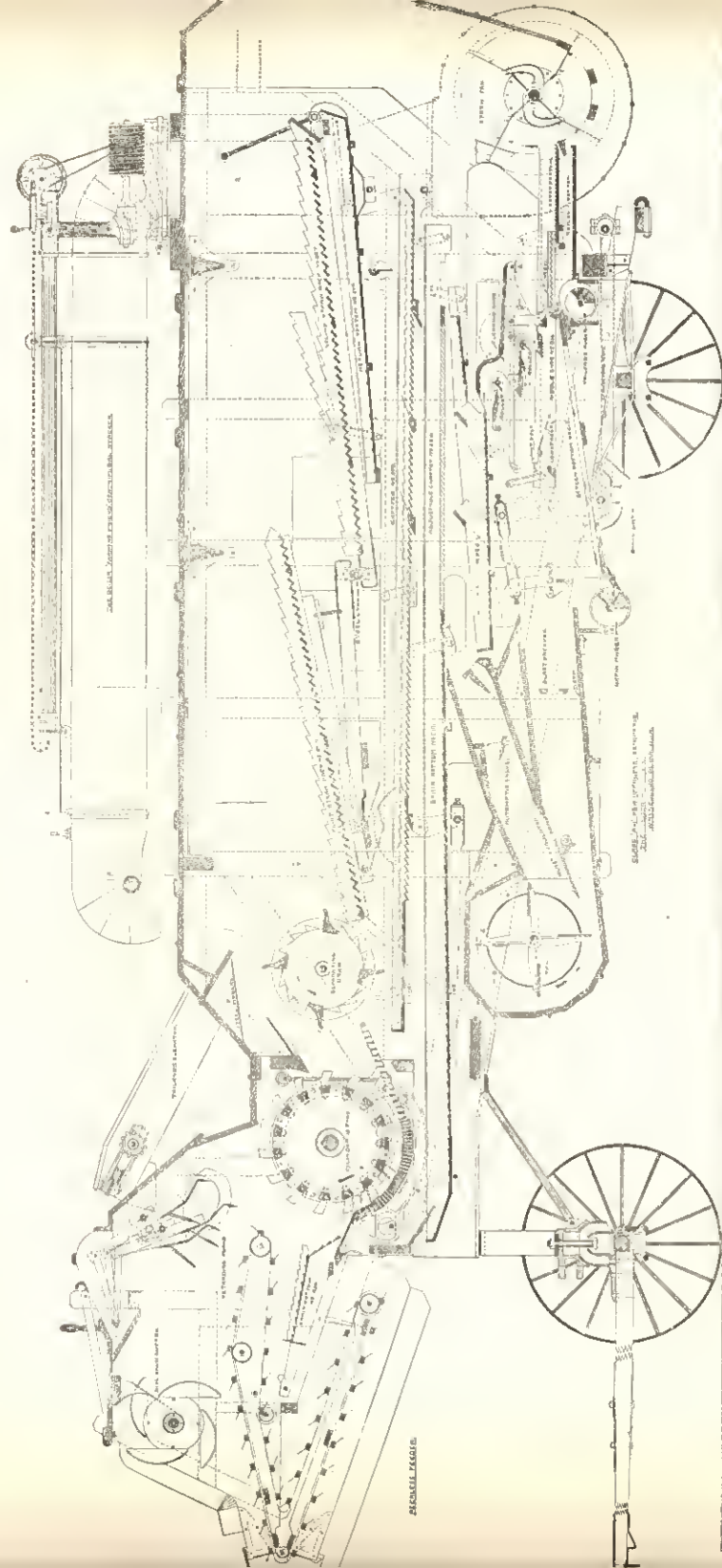


SECTIONAL VIEW OF "NEW PEERLESS" SEPARATOR WITH WIND STACKER AND FEEDER ATTACHED



THE 'NEW PERLESS,' SEPARATOR WITH REAR DELIVERY WIND STACKER ATTACHED

NOTE—The Belt Tightener (shown in above cut) for belt to drive wind stacker fan is the same as Bell Tightener used for belt to drive wind stacker fan on Peerless Rice Machine.



SECTIONAL VIEW OF CLASS A-1 "NEW PEERLESS" SEPARATOR WITH WIND STACKER AND FEEDER ATTACHED.

NOTE—If necessary, the grate rear of cylinder can be raised when threshing brittle grain. To do this, loosen the shields over grate, remove rod at rear end of grate, then raise grate, and place rod in upper hole and through holes in grate and fasten, then fasten the shields. In other conditions of grain this grate should remain down.

SPECIAL DIRECTIONS

FOR CLASS A-1 "NEW PEERLESS" SEPARATOR

Operate the A-1 separator for Wheat, Oats and Barley according to directions on pages 14 to 16, except the speed of cylinder should be 800 to 900 revolutions per minute, and the adjustable chaffer should be opened or closed at the adjustable nut at the rear, to suit the conditions.

For cleaning Wheat the adjustable chaffer may be partially closed.

For cleaning Oats or Barley it may be partially opened.

For screening the Grain and to remove the Cheat Screen (see p. 15).

TO CLEAN ALL LIGHT SEEDS

Speed the cylinder about 800 revolutions per minute and close the adjustable chaffer. For cleaning Flax, Timothy and Millet, move the lever at "C" down. For Orchard Grass and Red Top place the lever at "C" near the middle of the rack; regulate blast at lever at "A" and the weight on the automatic blast regulator to suit. For general arrangement of blast regulator (see cut page 16).

If the above is not sufficient to clean the seed, a riddle shoe is provided beneath the roller cleaner *with upper and lower sieve rests*, in which all finishing sieves can be used.

TO PUT IN THE SIEVES

To place the sieve in lower sieve rest in riddle shoe, remove the bar "K" from screen bottom. Then push the sieve in until spring pins attached to sieve go in lower holes in riddle shoe sides "X".

To place the sieve in the upper sieve rest in riddle shoe, remove the hand nut at "F", pull out the spring pins at "M" and turn the shelf "H" up and front until spring pins go in holes in shoe sides at "Y". Then push the sieve in until spring pins attached to sieve go in upper holes in riddle shoe sides "X".

NOTE—When the upper sieve is used the shelf "H" must remain up. When upper sieve is removed the shelf "H" must be turned down with spring pins in holes at "M". When the lower sieve is removed, replace the bar "K".

SIEVES TO BE USED

For cleaning Fax, use No. 219 sieve in lower rest.

For cleaning Timothy, use No. 218 sieve in lower rest.

For cleaning Millet, use No. 232 sieve in lower rest.

For cleaning Red Top, use No. 233 sieve in lower rest and No. 216 sieve in upper rest.

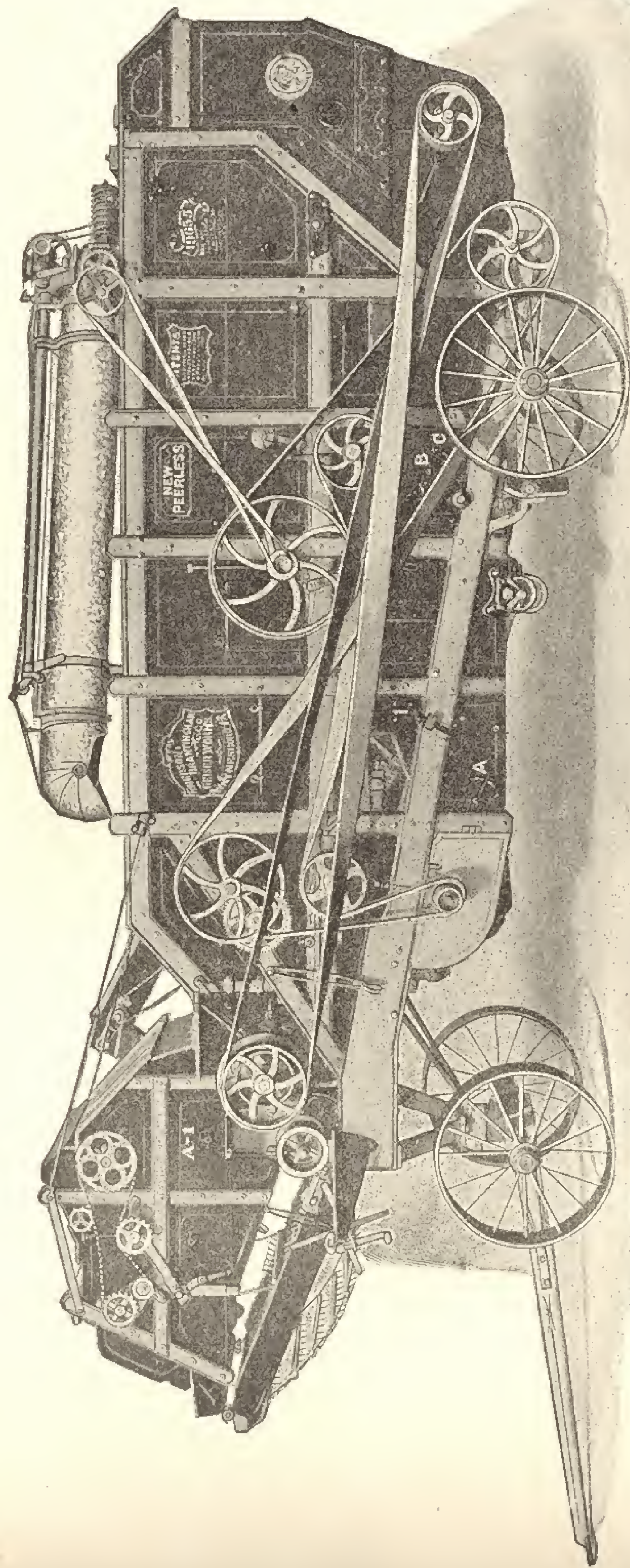
For cleaning Orchard Grass, use No. 217 sieve in lower rest and No. 216 sieve in upper rest.

For cleaning Alfalfa, use No. 246 sieve in lower rest.

For cleaning Mustard, use No. 250 sieve in lower rest.

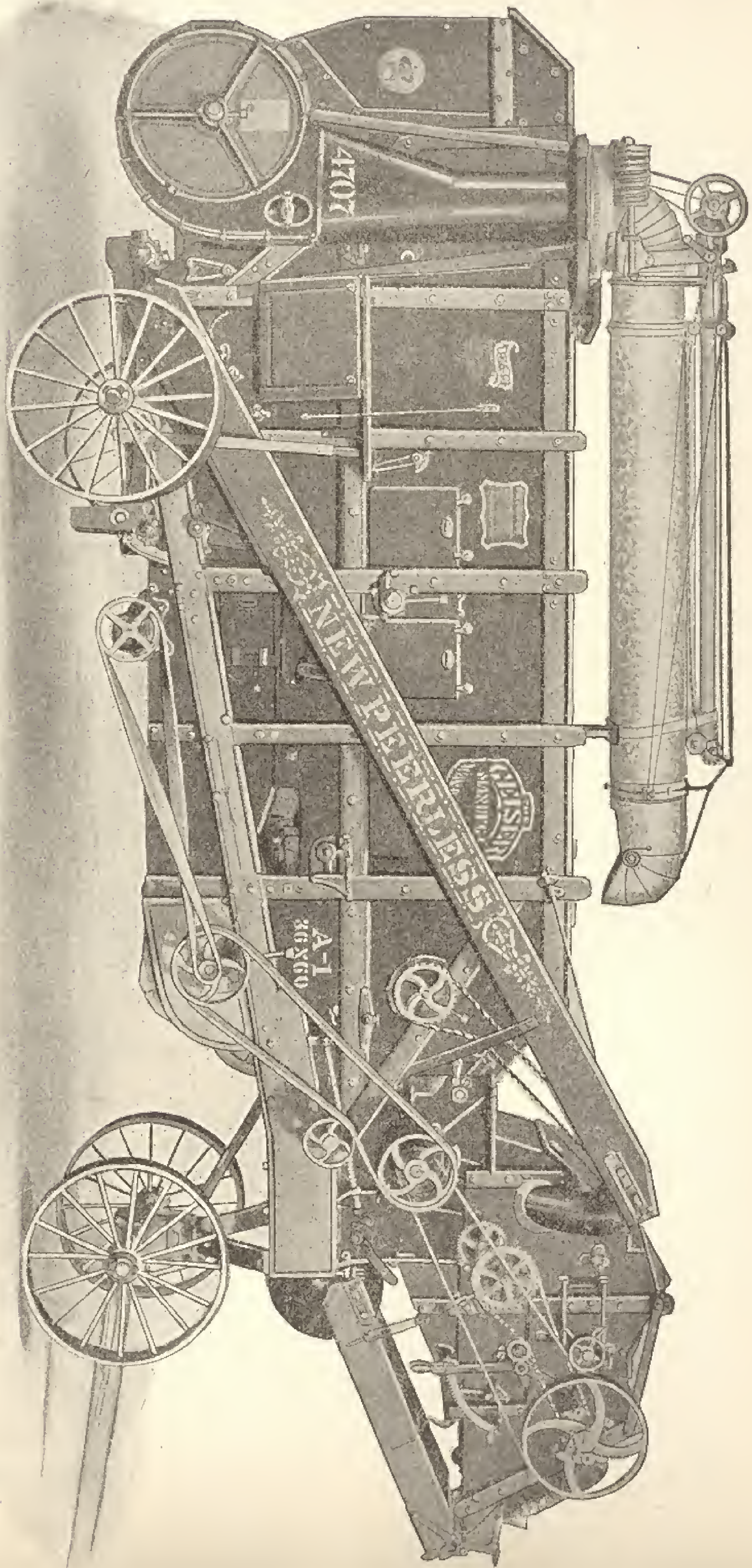
For cleaning Wheat use No. 249 sieve in lower rest.

For cleaning Orchard Grass and Red Top or other very light seeds, that require a large sieve surface. Open the discharge door in bottom that feeds the rollers. To do this open door "Z" and slack the nut on eccentric and pull the eccentric down, then open the discharge door in bottom. Next place the eccentric in slot and draw up the nut. This will keep the door open to discharge the seed on sieves. For all other grain or seed, this door must be closed. For operating the FEEDER see pages 35 and 36.



CLASS A-1 "NEW PEERLESS" SEPARATOR WITH WIND STACKER AND FEEDER ATTACHED

Showing manner of belting on right-hand side



CLASS A-1 "NEW PEERLESS" SEPARATOR WITH WIND STACKER AND FEEDER ATTACHED

Showing manner of belting on left-hand side

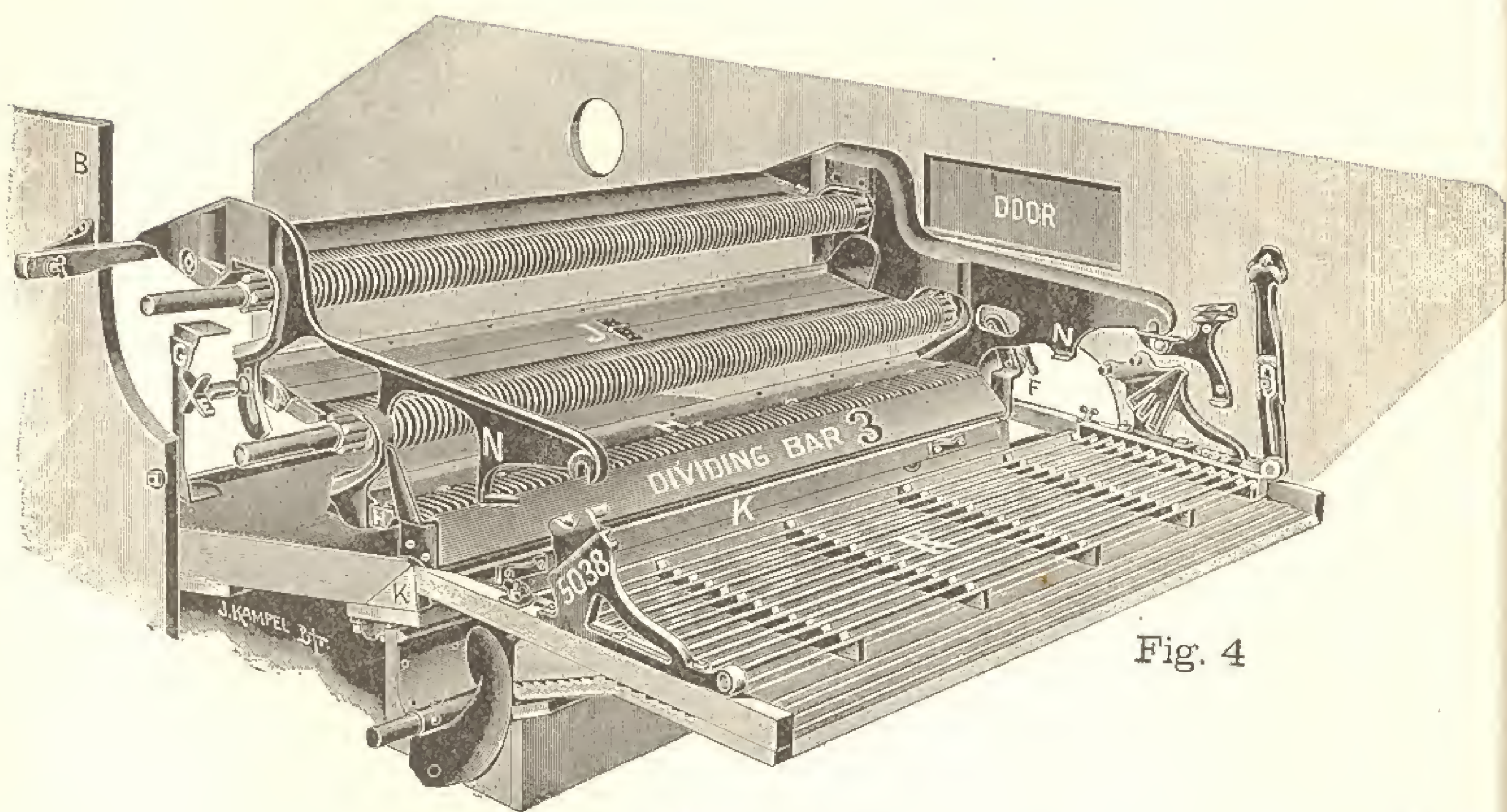


Fig. 4

THE "NEW PEERLESS" WHEAT CLEANER

TO PUT IN SEED ATTACHMENTS

make the following changes in the Wheat Cleaner (see cut Fig. 4).

Remove thumb-nut at F, unhook and take out Dividing Bar No. 3, take out Rack R, lower the shelf J by thumb-nut at E and pull out bar, at B; now the wheat cleaner is ready to put in any of the attachments, except the Dakota Special attachment, which requires the Cheat Screen in screen bottom K to be removed. To do this, slack the two nuts on the bolts that hold top board on screen bottom K, and pull the top board straight back and out. Next pull out the cheat screen.

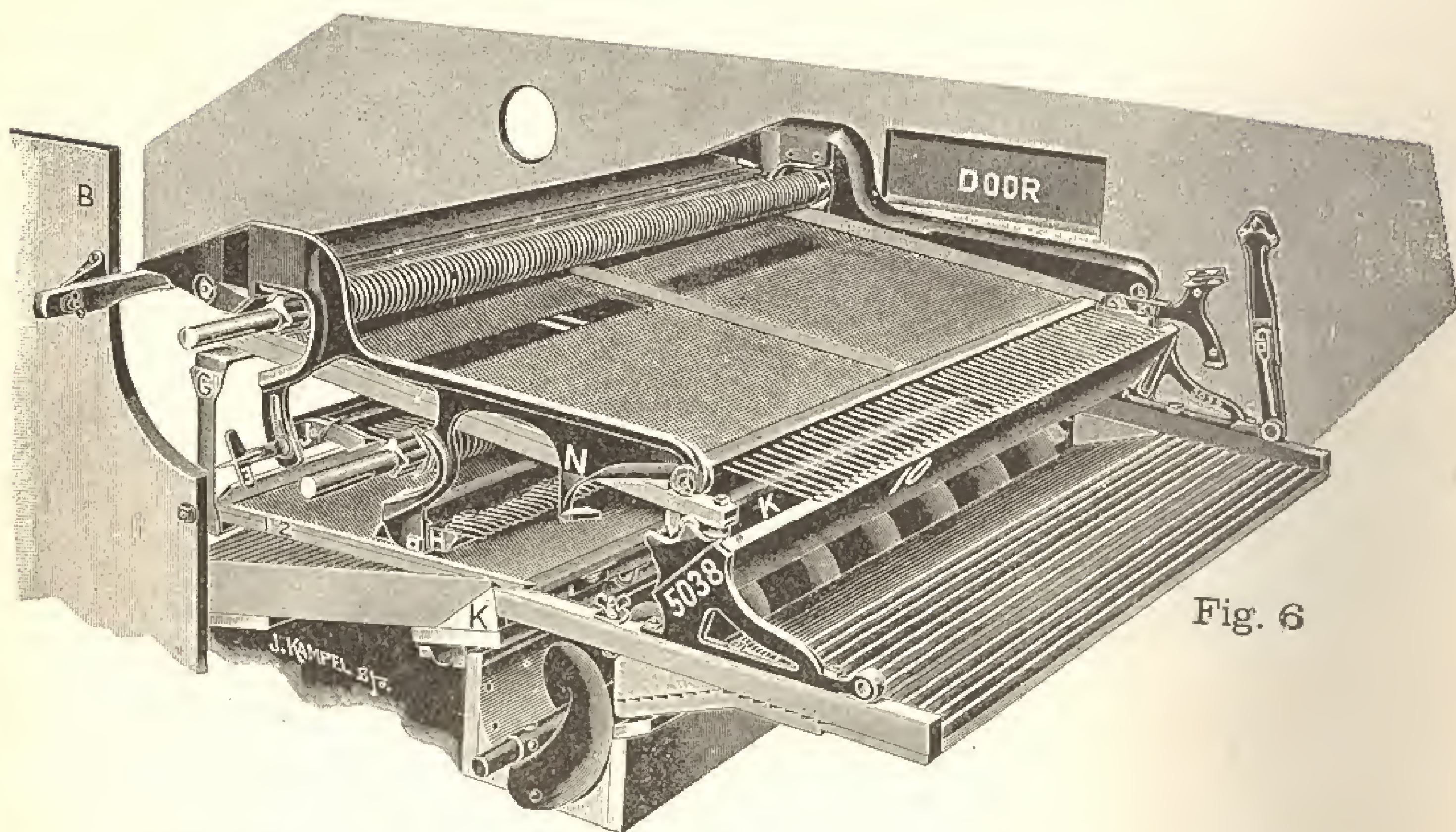


Fig. 6

“PEERLESS” REGULAR FLAX ATTACHMENT

TO CLEAN FLAX (See Cut Fig. 6)

Use Upper Sieve No. 11, Lower Sieve No. 12, adjustable Tail Board No. 10.

Refer to cut Fig. 4 on page 30 showing how to make the required changes in the wheat cleaner to put in the Attachment. Then place No. 12 sieve under Shelf H with front ends supported on brackets at G (see cut Fig. 6) and drop the two pins on under side of sieve into holes in plates attached to screen bottom K (see cut Fig. 6). Next place sieve No. 11 between the Shelf J and the upper roller with the front end supported on brackets G (see Fig. 6) and attach the back end of No. 11 to the upper pins on brackets Nos. 5038 and 5039 and turn buttons on underside. Then place No. 10 Tail Board in slots in brackets Nos. 5038 and 5039 (see Fig. 6).

DIRECTIONS FOR OPERATING

Push in Bar B, move down lever at C. Reduce the blast at lever A to prevent blowing the seed with the chaff, speed the cylinder 1100 to 1200 revolutions per minute, use three concaves adjusted up to cylinder front and rear. NOTE—The letters A, B, C, E and F will be found on the outside of machine.

To remove coarse matter from the tailings place Rack R (see Fig. 4 page 30) over tail end auger and use No. 10 Tail Board in upper slots in brackets Nos. 5038 and 5039.

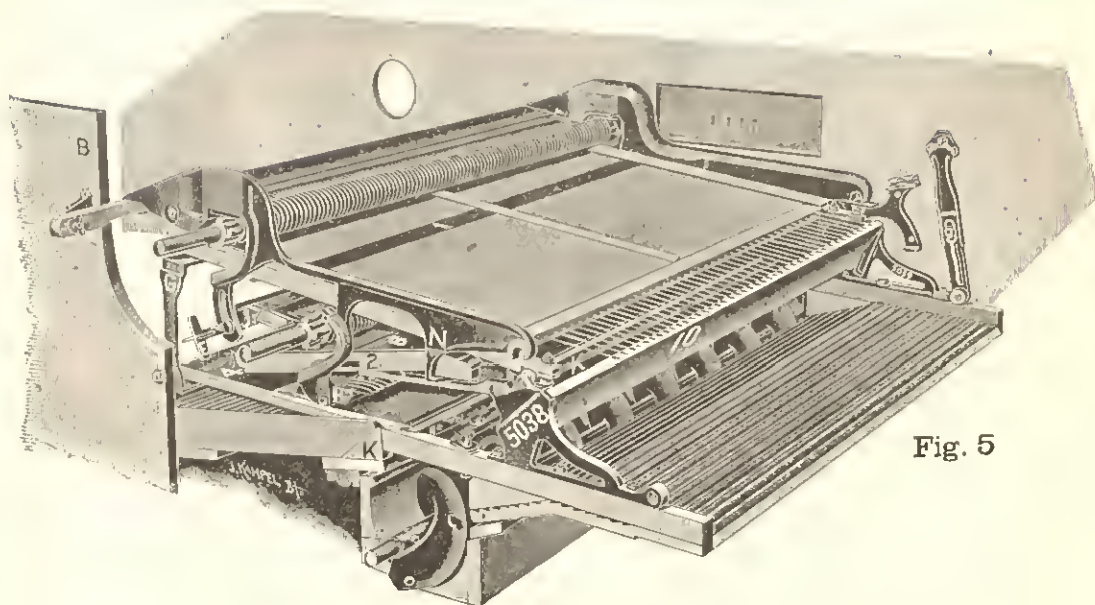


Fig. 5

TO CLEAN TIMOTHY (See Cut Fig. 5)

Use Upper Sieve No. 1, Return Board No. 2, Lower Sieve No. 4, adjustable Tail Board No. 10. Refer to cut Fig. 4 on page 30, showing how to make the required changes in the Wheat Cleaner to put in the Attachment.

First—Place No. 4 sieve under Shelf H with front ends supported on brackets at G (see cut Fig. 5) and drop the two pins on under side of sieve into holes in plates attached to screen Bottom K (see Fig. 5).

Second—Place Return Board No. 2 between Shelf H and lower roller, and rest the board on lugs at N (see Fig. 5) and attach the two connecting rods to lower pins on brackets Nos. 5038 and 5039.

Third—Place No. 1 sieve between the Shelf J and the upper roller with the front ends supported on Brackets G (see Fig. 5) and attach the back end of No. 1 to the upper pins on brackets Nos. 5038 and 5039 and turn the buttons on under side.

Fourth—Place No. 10 Tail Board in slots in brackets Nos. 5038 and 5039.

DIRECTIONS FOR OPERATING

Push in bar at B, move down lever at C. Reduce the blast at lever A to prevent blowing the seed with the chaff, speed the cylinder 1050 revolutions per minute and adjust the concaves to suit. NOTE—Letters A, B and C will be found on outside of machine.

To remove coarse matter from the tailings place Rack R (see Fig. 4, page 30) over the tail end auger and use No. 10 Tail Board in upper slots in brackets Nos. 5038 and 5039.

NOTE—To clean Orchard Grass on Peerless Separators (except Class A-1) order blue print No. 189 showing attachment required and directions for operating.

TO CLEAN GERMAN MILLET ON "THE PEERLESS"

See Cut Fig. 5

Use Upper Sieve No. 1, Return Board No. 2, Lower Sieve No. 114, instead of No. 4 (see cut Fig. 5) and adjustable Tail Board No. 10.

Refer to cut Fig. 4 on page 30, showing how to make the required changes in the wheat cleaner, to put in the Attachment.

Then—Place No. 114 sieve under Shelf H with front ends supported on brackets at G (see Fig. 5) and drop the two pins on under side of sieve into holes attached to screen Bottom K (see Fig. 5).

Next—Place Return Board No. 2 between Shelf H and the lower roller and rest the board on lugs at N (see Fig. 5) and attach the two connecting rods to lower pins on brackets Nos. 5038 and 5039.

Next—Place No. 1 sieve between the Shelf J and the upper roller with the front ends supported on Brackets G (see Fig. 5) and attach the back end of No. 1 to the upper pins on Brackets Nos. 5038 and 5039 and turn buttons on under side.

Then—Place No. 10 Tail Board in slots in brackets Nos. 5038 and 5039. Operate the same as for Timothy. (See page 32).

TO CLEAN ALFALFA AND CLOVER ON "THE PEERLESS"

See Cut Fig. 5

Use Upper Sieve No. 1, Return Board No. 2, Lower Sieve No. 113, instead of No. 4, (see cut Fig. 5) and adjustable Tail Board No. 10.

Refer to cut Fig. 4 on page 30, showing how to make the required changes in the wheat cleaner, to put in the Attachment.

First—Place No. 113 Sieve under Shelf H with front ends supported on brackets at G (see cut Fig. 5) and drop the two pins on under side of sieve into holes in plates attached to screen Bottom K (see Fig. 5).

Second—Place Return Board No. 2 between Shelf H and lower roller and rest the board on lugs at N (see Fig. 5) and attach the two connecting rods to lower pins on brackets Nos. 5038 and 5039.

Third—Place No. 1 Sieve between the Shelf J and the upper roller with the front ends supported on Brackets G (Fig. see 5) and attach the back end of No. 1 to the upper pins on Brackets Nos. 5038 and 5039 and turn buttons on under side.

Fourth—Place No. 10 Tail Board in slots in Brackets Nos. 5038 and 5039.

NOTE—Remove the Concaves (See page 17), and put in three concaves filled with No. 43 corrugated teeth.

DIRECTIONS FOR OPERATING

Push in Bar B, move down lever at C. Reduce the blast at lever A to prevent blowing the seed with the chaff, speed the cylinder 1100 to 1200 revolutions per minute, use three concaves adjusted up to cylinder front and rear. NOTE—The letters A, B, C, E and F will be found on the outside of the machine.

To remove coarse matter from the tailings place Rack R (see Fig. 4 page 30) over tail end auger and use No. 10 Tail Board in upper slots in brackets Nos. 5038 and 5039.

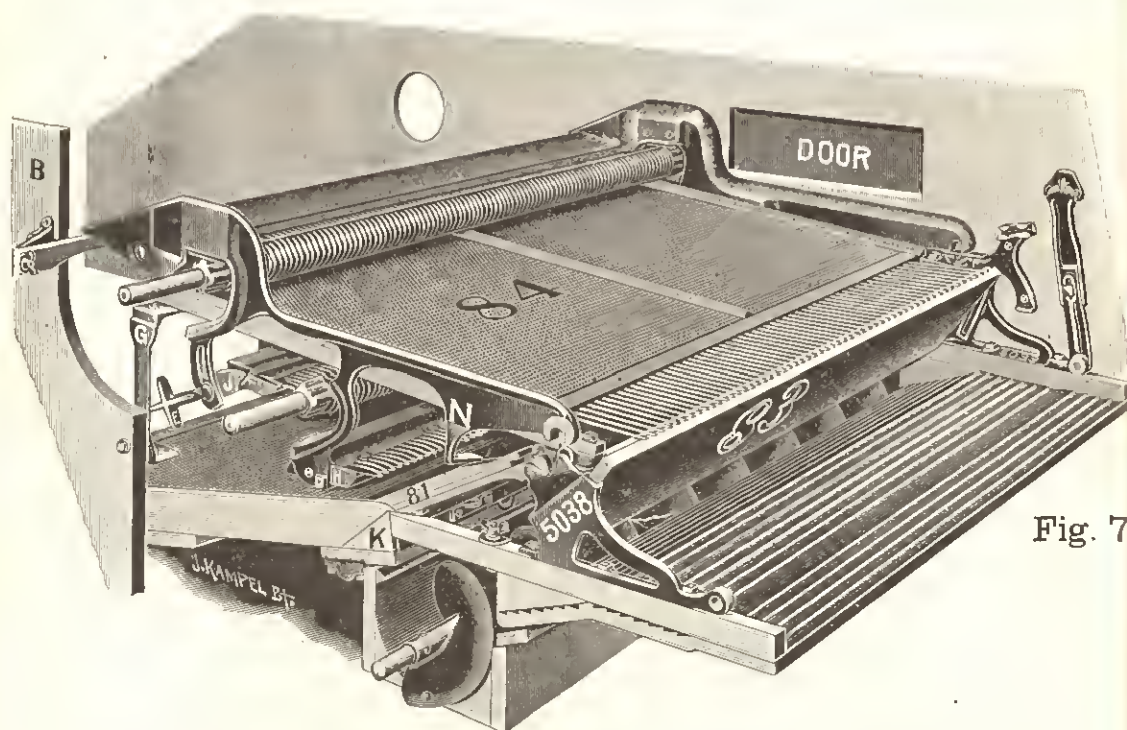


Fig. 7

“PEERLESS” DAKOTA SPECIAL FLAX ATTACHMENT

TO CLEAN FLAX ON DAKOTA SPECIAL (See Cut Fig. 7)

Use upper Sieve No. 84, Return Board No. 81, Lower Screen No. 82 Adjustable Tail Board No. 83. Refer to cut Fig. 4 on page 30, showing how to make the required changes in the Wheat Cleaner to put in the Attachment.

Then put Flax Screen No. 82 in the place from which the Cheat Screen was taken and replace Board on the Screen Bottom K, and fasten. Next place Return Board No. 81, on top of Screen Bottom K under Shelf H, (See cut Fig. 7) and attach the connecting rods to lower pins on brackets Nos. 5038 and 5039. Next place No. 83 Tail Board in the rear grooves in Brackets Nos. 5038 and 5039. Then place No. 84 Sieve between the Shelf J and the upper roller with the front end supported on Brackets G (See cut Fig. 7) and attach the rear end to upper pins on Brackets Nos. 5038 and 5039 and turn the buttons on under side.

DIRECTIONS FOR OPERATING

Push in Bar B, move down lever at C. Reduce the blast at lever A to prevent blowing the seed with the chaff, speed the cylinder 1100 to 1200 revolutions per minute, use three concaves adjusted up to cylinder front and rear. NOTE—The letters A, B, C, E and F will be found on the outside of machine.

To remove coarse matter from the tailings place Rack R (see Fig. 4 page 30) over tail end auger and use No. 83 Tail Board in upper slots in brackets Nos. 5038 and 5039.



FRONT VIEW OF "PEERLESS" FEEDER

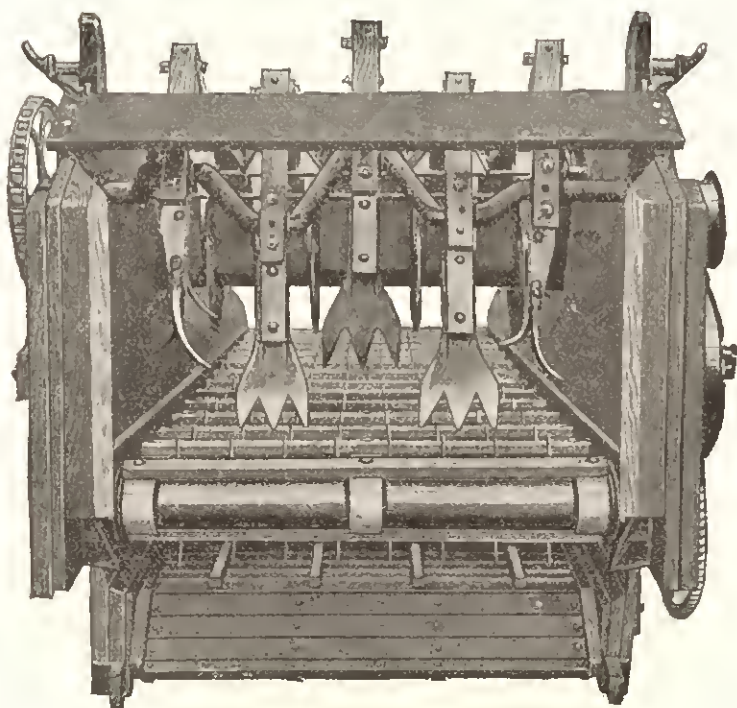
DIRECTIONS FOR OPERATING "PEERLESS" FEEDER

When the feeder is received, examine the governor to see that the levers work freely. Put coal oil in all the joints and connections to these levers. Move the levers by hand until you are sure all parts work freely. Oil all working parts and bearings of the governor and feeder with good machine oil. Adjust the governor so that the bundle carrier will not start until the cylinder of thresher is almost up to threshing speed. To do this move the weights on the levers toward the center and the governor will let go, or move the weights out and the governor will hold fast. If this is not sufficient, slack the set screw on governor and move the governor out on sleeve a little to let go, or in a little to hold fast, then draw up the set screw.

SPEED OF BUNDLE CARRIER

To change the speed, move the gear wheel on carrier shaft so it will gear into the intermediate gear on lever. For fast speed, slack the nut on lever, and gear into the large intermediate wheel. For slower speeds gear into the small intermediate wheels. Draw up the nut on lever after making change. **NOTE**—The speed of bundle carrier on Class A-1 feeder is changed with lever at B. For fast speed move the lever out. For slow speed, move the lever in.

To stop the carrier, move lever to the center.



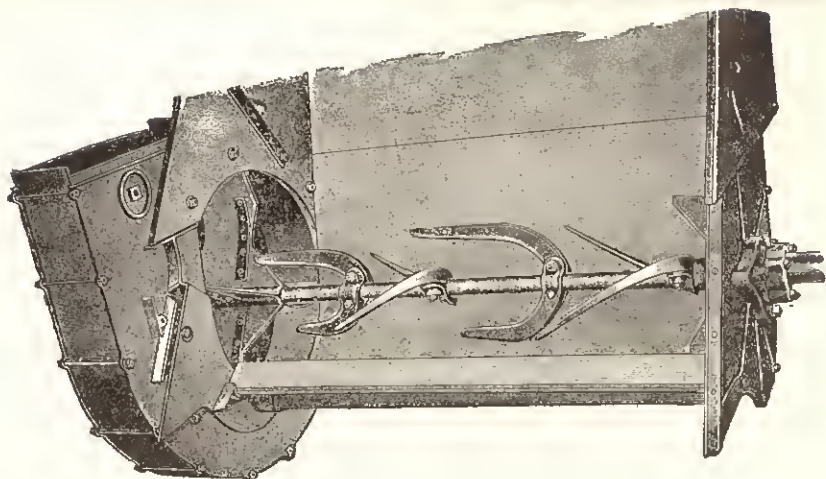
REAR VIEW OF "PEERLESS" FEEDER

RETARDING FORKS

For damp grain move the notched bars at top of feeder back toward threshing cylinder, which will lower the forks to retard the grain. For dry grain move them toward the front to raise the forks. NOTE—The retarding forks in Class A-1 feeder are adjusted by moving the lever at top of feeder. For damp grain pull out the spring latch in lever and move the lever toward the front which will lower the forks to retard the grain. For dry grain move the lever back toward threshing cylinder to raise the forks. The knives must be kept sharp. Two sets of knives are furnished so that one set can be sharpened while the other is in use. To take out the knives remove the cotter pins or bolts that hold them in place.

KNIFE GRINDER

Attach the knife grinder to front end of sill of "PEERLESS" SEPARATOR on tailing elevator side and bolt fast and drive from the governor on the FEEDER with the belt under the main feeder belt. (See cut page 23)



CUT SHOWS WIND STACKER FAN WITH "FORCE FEED"

NEW "PEERLESS" WIND STACKER

The regular wind stacker fan is driven from the cylinder shaft by a cross belt, (See page 22) but the Special Rear-delivery wind stacker fan is driven from the Cylinder Shaft by a straight belt (See page 25).

TO SAVE THE CHAFF

Take out part of the chaff board extension between cleaning shoe and Centrifugal Fan, provided for the purpose, by turning the buttons underneath.

DEFLECTOR

The deflector at outer end of discharge pipe can be turned to direct the straw in any direction (by means of cable connected with chain over sprocket attached) by disengaging hand wheel and sprocket, which is done by pulling out the clutch at center of hand wheel on the high stacker and by pulling out pin connecting with crank on low stacker.

TO OSCILLATE THE PIPE AUTOMATICALLY

Drive the automatic shaft from pulley attached to crank by a straight belt. Throw automatic shaft in gear by lifting wrought iron hook out of sleeve at trip fork. To reverse the oscillating pipe at any point set stops on trip shaft of high stacker on each side of trip nut and screw pins on either side of trip bracket in the turn-table of low stacker.

TO OSCILLATE THE DISCHARGE PIPE BY HAND

Throw the automatic shaft out of gear by hooking the wrought iron hook into the eye on sleeve on automatic shaft at trip fork, and place crank on square end of shaft at turn-table. (The belt does not need to be removed when operating the stacker by hand).

TO CHANGE LENGTH OF DISCHARGE PIPE

Drop clutch at hand wheel or crank back in place and lift the pawl or hook out of the chain link and turn the hand wheel or crank to shorten or lengthen. It can be held in place by dropping hook in chain.

WEIGHERS AND WAGON LOADERS

best adapted to the different classes of "Peerless" and 4 and 5 "Geiser" threshers:

No. 1 Weigher with swinging cross conveyor for Class "A" thresher.
No. 2 Weigher, gravity, for Classes "A-1", "AA", "A", "B-1", "B-2", "C-1", "C-2", "D" and "E" threshers.

No. 3 Weigher, low down, with bagging attachment for Classes "A-1", "AA", "A", "B-1", "B-2", "C-1", "C-2", "D", "E" and No. 4 and No. 5 Geiser.

No. 4 Wagon Loader for Classes "AA", "A", "B-1", "B-2", "C-1", "C-2", "D", and "E" threshers.

No. 5 Weigher with swinging cross auger conveyor for Classes "B-1", "B-2", "C-1", "C-2", "D" and "E" threshers.

No. 6 Weigher with stationary cross auger conveyor for Classes "AA", "A", "B-1", "B-2", "C-1", "C-2", "D" and "E" threshers (low down for barns).

No. 7 Wagon Loader for No. 4 and No. 5 Geiser only.

No. 8 Weigher, gravity for No. 4 and No. 5 Geiser only.

No. 9 Weigher with stationary cross auger conveyor for Class "A-1" only.

No. 10 Weigher with swinging cross auger conveyor for "A-1" only.

No. 0 Weigher with stationary cross conveyor for class No. 4 Geiser thresher.

No. 00 Weigher with stationary cross conveyor for class No. 5 Geiser thresher.

Directions for attaching the above list of weighers to the different classes of "Peerless" and 4 and 5 "Geiser" threshers:

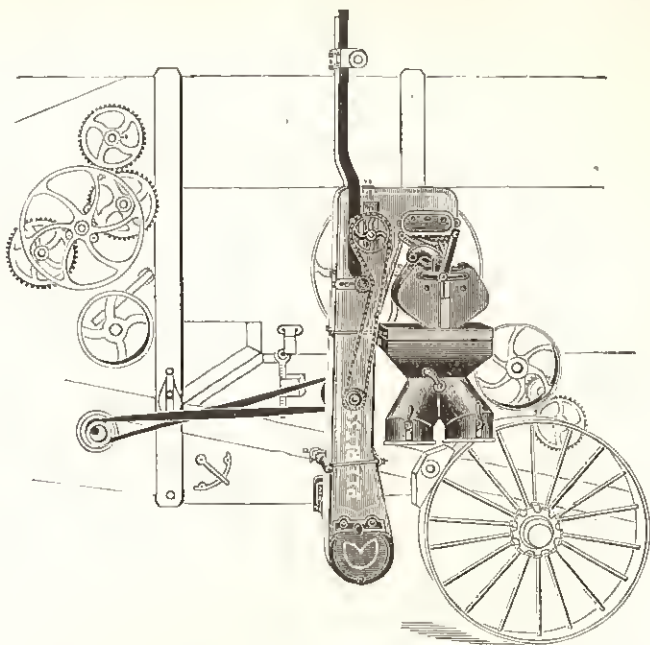
For Nos. 1, 5 and 6, see page 39; for Nos. 2, 4, 7, 8 and 9, see page 40; for No. 3, see below; for Nos. 0 and 00 see page 41.

Attach No. 10 elevator the same as No. 9, see page 40.

For adjusting the scale and tallier, see page 39.

DIRECTIONS FOR ATTACHING No. 3 LOW DOWN WEIGHER

Level the separator and put on all belts. Drop a plumb line from top of the deck to center of grain auger. For "Peerless" AA to E bolt brackets No. 8008 to side of separator $\frac{1}{2}$ inch to rear of this line and for A-1 machine $6\frac{1}{2}$ inches toward front and close up under top to support pipe to which elevator is to be attached. To support this pipe on Nos. 4 and 5 "Geiser" Separators bolt brackets on top of separator, so that elevator will set plumb using brackets No. 4343 for No. 4 "Geiser" Separator and brackets No. 5004 for No. 5 "Geiser" Separator. Attach the hanger iron to the upper end of the elevator with the bolts that you will find in their proper places. Tie the hangers together with piece of $8 \times \frac{3}{8}$ inch pipe and rod. Slip hooks No. 6986 over hanger with the open side over the center of elevator. Bolt No. 6761 rim with sheet iron extension, to lower plate No. 6629. Hook the elevator over the pipe, adjust up to the bottom of the grain auger case, hang the weigher plumb with the upright frame pieces. Fasten bracket No. 049 to the straight side of elevator with clamp No. 447 using the $8\frac{1}{2} \times \frac{3}{8}$ inch carriage bolts. Place the one inch pipe through No. 049 bracket and adjust the clamp to the line of the sill of separator, fasten even with the lower edge of sill with No. 7447 bracket. To change to the opposite or elevator side, place the bracket No. 7447 to the rear of the grain auger case and even with the top edge of sills. Drive from Fan Shaft. (See cut on opposite page.)

"PEERLESS" LOW DOWN No. 3 WEIGHER**THE SCALE**

The elevator should be plumb and the scale beam should be level, when resting on the lower fork of casting No. 6430. The heavy weight should be placed on the beam at the number of pounds to be weighed, 16 lbs, for Oats; 30 lbs, for Wheat, etc. The small weight should go on end of beam outside of forked casting No. 6430 and should not be moved except to balance the scales, which can be done by moving it in or out. Attach weighing hopper on knife edges of balancing fork so that the link on the hopper catches the hook on scale beam side of elevator which holds the hopper steady. The catch No. 9219 bolted to the forward end of the Scale Beam is slotted, so as to adjust up and down, and when the Scale Beam is level should be adjusted up so as to catch over the finger of wheel hub $\frac{1}{8}$ inch or less, just sufficient so that the rocking of the machine will not trip it off before the proper amount of grain is in the bucket. In setting tally box, open the lid and lift out the tens and hundreds wheels, then the unit wheel. Replace the unit wheel with the figure "0" directly under the opening in the lid, then the tens and hundreds wheels. Place them with the figure "0" on each wheel directly under the opening in lid. This applies to all "Peerless" Weighers.

DIRECTIONS FOR ATTACHING "PEERLESS" Nos. 1, 5 & 6 WEIGHERS WITH SWINGING OR STATIONARY CROSS CONVEYOR

Drop a plumb line from the deck of separator to the center of grain auger. Bolt brackets No. 8008 to the sides of separator $5\frac{1}{2}$ inches to the rear of this line and close up under top. Place collars No. 4320 on the $1\frac{1}{2}$ inch pipe outside of brackets No. 8008. Fasten swivel No. 8006 and 8007 to pipe across the separator and clamp elevator to brackets with No. 446, using $8\frac{1}{2} \times \frac{1}{2}$ inch machine bolts. Fasten the elevator at the bottom with brackets No. 7447 and pipe and clamps. See that the opening at the lower end is central with the grain spout. Bolt No. 6761 rim with 6 inch sheet iron extension, to lower end of elevator to receive the grain. Drive from fan shaft, to attach Conveyor (See page 41.

DIRECTIONS FOR ATTACHING "PEERLESS" NO. 2 GRAVITY WEIGHER, NO. 9 WEIGHER WITH STATIONARY CROSS CONVEYOR & NO. 4 WAGON LOADER TO "PEERLESS" SEPARATORS

Level the separator and put on all belts.

Get a plumb line from the center of the grain spout to the top of separator. Bolt brackets No. 8008 to separator sides close up under the top and 7 inches from the plumb line toward front of separator.

Place large pipe in the bracket with collars No. 4320 on pipe outside of the brackets No. 8008. Place the pipe so there will be 11 inches space between the separator side and elevator. Fasten collars to pipe against brackets No. 8008.

Bolt brackets No. 7323 and 7324 to sill with $2\frac{1}{2} \times \frac{1}{2}$ inch lag bolts. Clamp 19 inch pipe to elevator with eye bolts and wrought iron clamp so that pipe will meet the brackets bolted to sill of separator. Attach the swivel clamp plate to elevator, so that the sheet iron spout at lower end will clear the bottom of the auger case. Place pulley No. 6983 on counter shaft for No. 2 Gravity Weigher and No. 4 Wagon Loader.

Bolt wood strip and clamp to trunk of elevator to form step to oil and to take register of tallier. For attaching No. 9 Stationary Cross Conveyor to Class A-1 Separator (See opposite page).

Belting: Run top belt straight from pulley on counter shaft to pulley at top of elevator for No. 2 Gravity Weigher and No. 4 Wagon Loader. NOTE—All Weighers and Wagon Loaders for Class A-1 Separator, (except No. 3 Weigher) are driven with cross belt from pulley No. 9330 attached to pulley No. 8424 and for all other "Peerless" Separators are driven with cross belt from fan shaft. Bolt wood rest to stationary part of top of separator rear of front door hinges to support elevator when folded.

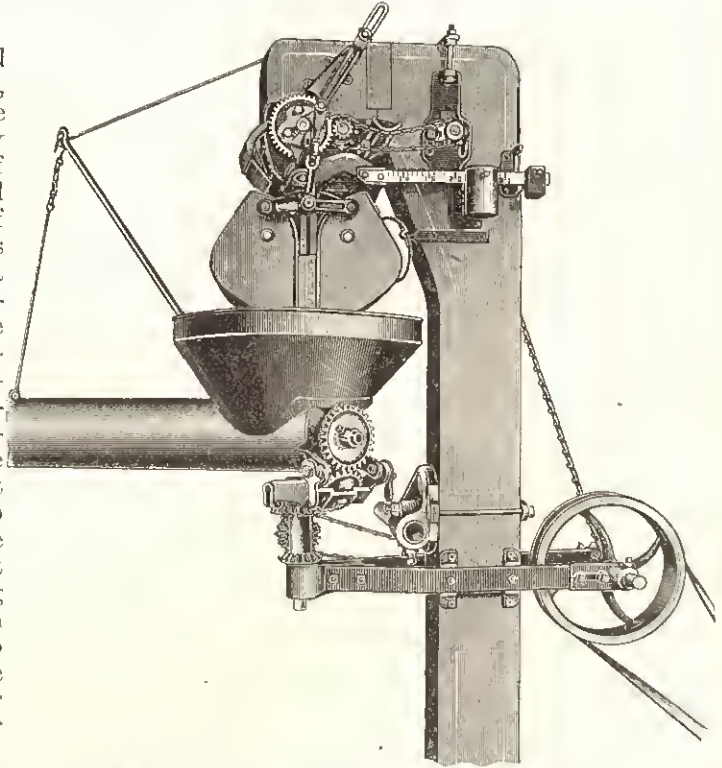
DIRECTIONS FOR ATTACHING No. 7 WAGON LOADER & No. 8 GRAVITY WEIGHER TO NOS. 4 and 5 "GEISER" SEPARATOR

Level the separator. Drop a plumb line from the deck of separator to the center of grain auger. Bolt brackets No. 4292 on deck of separator $3\frac{7}{8}$ inch to the rear of this line. Place collars No. 4320 on the $1\frac{1}{2}$ inch pipe between the brackets No. 4292. Fasten swivel No. 8006 and No. 8007 to pipe across the separator and clamp elevator to brackets with No. 446 using $8\frac{1}{4} \times \frac{1}{2}$ inch bolts. Bolt wood strip and clamp to trunk of elevator to form step to oil and to change the register, place pulley No. 6983 on counter shaft. Run top belt straight from counter shaft to pulley at top of elevator. Bolt the rest to stationary part of thresher cap to support elevator when folded and drive with cross belt from fan shaft.

THE DERRICK FOR SWINGING CONVEYOR

Turn the forked arms of No. 4307 toward the elevator, insert the elbow end of pipe brace in the socket of No. 4307 on the side next to the separator, attach the guy-rod to pin on head of elevator, insert shank of the eye bolt in the upper end of the pipe brace, fasten set screw in No. 4307. Hang the conveyor on the derrick by hooking the suspension rod in the eye-bolt of the pipe brace. Swing the hopper under the scale and fasten it to No. 4307 with the locked handles No. 4291. The conveyor can easily be detached at the hopper end by simply throwing up the locked handles. It can then be swung around to clear any obstruc-

tion, such as wind stacker, derricks, etc. When the weigher is properly attached take off the conveyor and place it on top of the separator, (this can be done in a few minutes by unlocking it at the hopper end, swinging it over the separator and unhooking it from the derrick) then slack the set-screws in socket No. 7447 and clamp No. 049 and pull the end of the pipe out of No. 7447. Swing the elevator up on wood rest that is to be bolted across the top of separator rear of front door hinges.



To attach No. 0 and 00 Weighers to No. 4 and No. 5 "Geiser" Separators, bolt brackets No. 4292 on top of deck 1 inch from rear edge of middle post to center of brackets 4292, slip $1\frac{1}{2}$ " pipe through brackets and swivel No. 8006 and 8007, clamp with No. 446 to elevator, drive with cross belt to fan shaft.

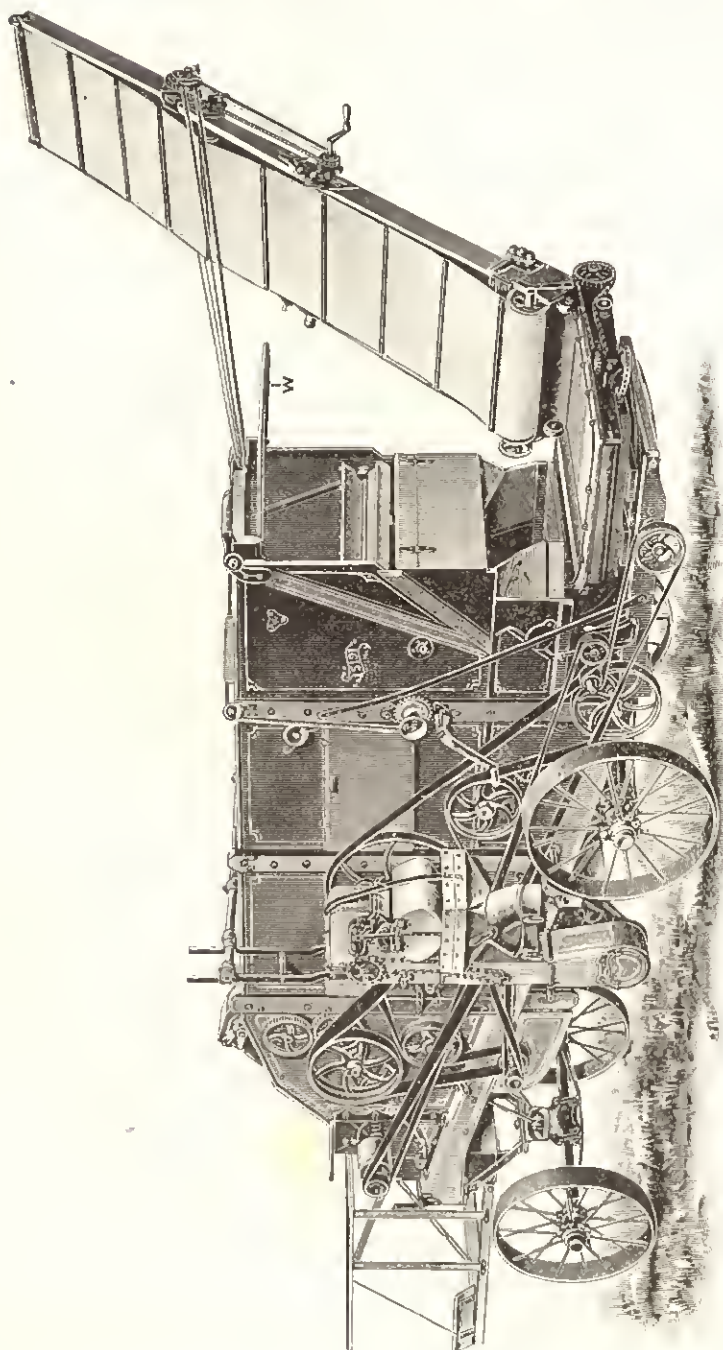
Attach stationary cross conveyor same as No. 6. See below, except use bracket No. 7323 instead of No. 8920.

TO ATTACH STATIONARY CROSS CONVEYOR

In connection with No. 6 weigher bolt bracket No. 8920 to the middle post 6 inches below the deck of separator. To this bracket fasten pipe sleeve No. 8956 to receive $1\frac{1}{4}$ inch pipe and from this pipe to the conveyor, bolt forked connection No. 8940. To locate the height of the cross conveyor above deck of separator, set the supporting bracket No. 9057 on top of separator which will indicate the height of the auger spout, and may require the top of the side posts of frame to be cut down a little. Adjustment of conveyor hopper to weigher bucket can best be done when elevator is set in a vertical position, central with the grain auger spout.

TO ATTACH STATIONARY CROSS CONVEYOR

In connection with No. 9 weigher to A-1 Separator fasten the combined brackets No. 9420 and 8920 with the three long bolts provided, to top of post by first removing the three bolts through top of the middle post of separator. To this bracket fasten pipe sleeve No. 8956 to receive $1\frac{1}{4}$ inch pipe and from this pipe to the conveyor, bolt forked connection No. 8940. To locate the height of the cross conveyor see bracket No. 9057 above.



"NEW PEERLESS" TELESCOPING CANVAS STACKER, WITH CHAFF BLOWER

Showing belt to drive Canvas Stacker

Furnished With or Without Chaff Blower

Also Built Non-Telescoping

Directions for Operating

"NEW PEERLESS" CANVAS STACKER

1st.—Clean out all oil cups and oil holes. Fill oil cups with wool or cotton and thoroughly oil all bearings before starting the machine and see that all nuts are drawn up tight.

2nd.—Keep the belts soft and pliable and only tight enough to prevent slipping. Put the belt on crossed as shown on opposite page.

3rd.—Attach the canvas curtains sent with the Stacker to the rod at "W" (see cut on opposite page), fasten the straps attached to curtains over the rod so that the buckles are on the outside, then attach the bottom of curtains to the rod on Turn Table.

4th.—To save the chaff close the door in bottom of chaff conveyor. Place the clutch No. 7988 in the clutch on fan pulley that drives the chaffer fan and fasten the clutch to the shaft with set screw. Next open the discharge door in the chaff bottom and fasten on brackets No. 7173 Right and 7172 Left.

5th.—When the chaffer fan is not used open the door in bottom of chaff conveyor and disengage clutch No. 7988 from the fan pulley and fasten the clutch to the shaft, after which the pulley will turn on the shaft, and must be oiled. Next close the discharge door in the chaff bottom and fasten, thus the chaff will go with the straw.

6th.—Lace the feed apron with lacer crossed on the top of the canvas; this puts the straight side of lacer next to the roller.

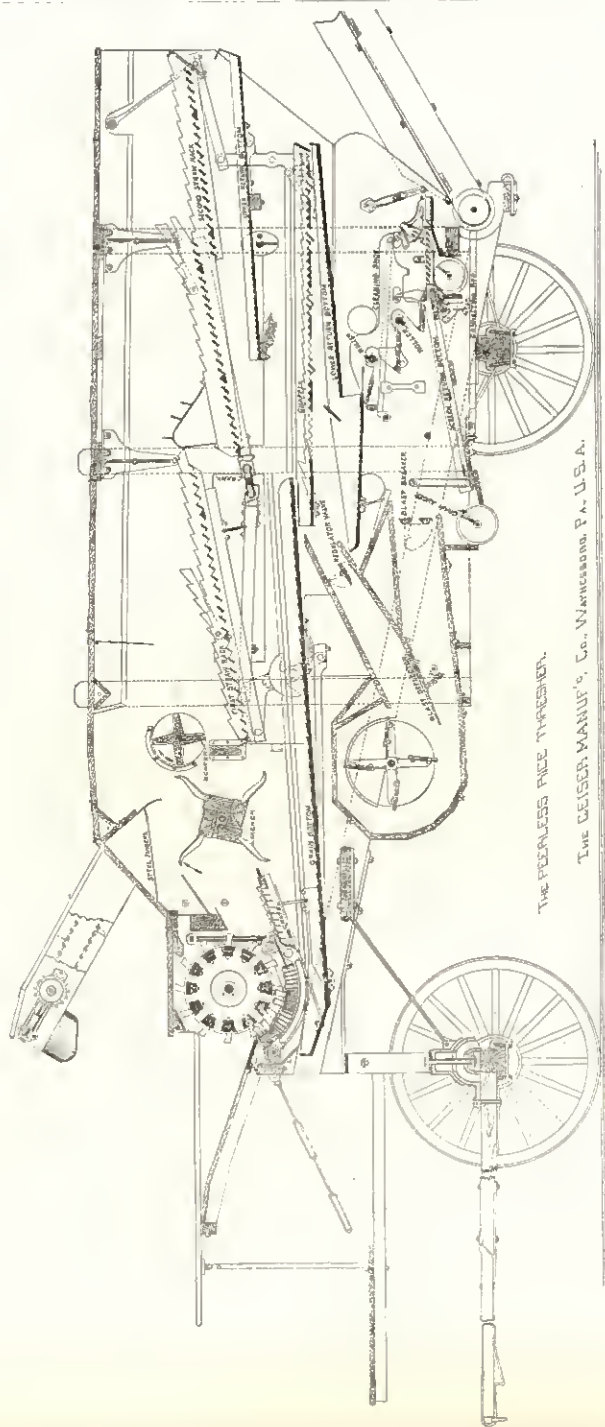
7th.—Provisions are made on both plain and telescoping stackers to tighten or put tension on delivery canvas and feed apron. This tension is operated with a crank sent with the stacker.

8th.—To put tension on chain that drives the upper canvas, slack the nuts on bolts through the side gear bracket on side of turntable, then move brackets and fasten.

9th.—Be careful not to put too much tension on the chains and canvas.

10th.—When the stacker is not in use slack the tension on delivery canvas and feed apron.

11th.—Before starting No. 4 and 5 Geiser, raise the plank over top rear end of separator on which stacker rests when folded, by means of crank sent with the stacker.



SECTIONAL VIEW OF "NEW PEERLESS" RICE THRESHER

Directions for Operating THE "PEERLESS" RICE MACHINE

Set the machine level. Before you start to operate the machine examine it and see that all the nuts are drawn up tight. Belt the machine the same as shown on pages 23 and 46. The belts must be kept in good condition and sufficiently tight. The Main Drive Belt from the Engine to the Separator should not be less than 7 or 8-inch, 4-ply, to run a 33-inch machine.

SPEED OF CYLINDER

The cylinder speed should be 850 to 1000 revolutions per minute, according to the condition of the rice. In damp, long straw the cylinder can be speeded to 1000, while dry straw requires less speed.

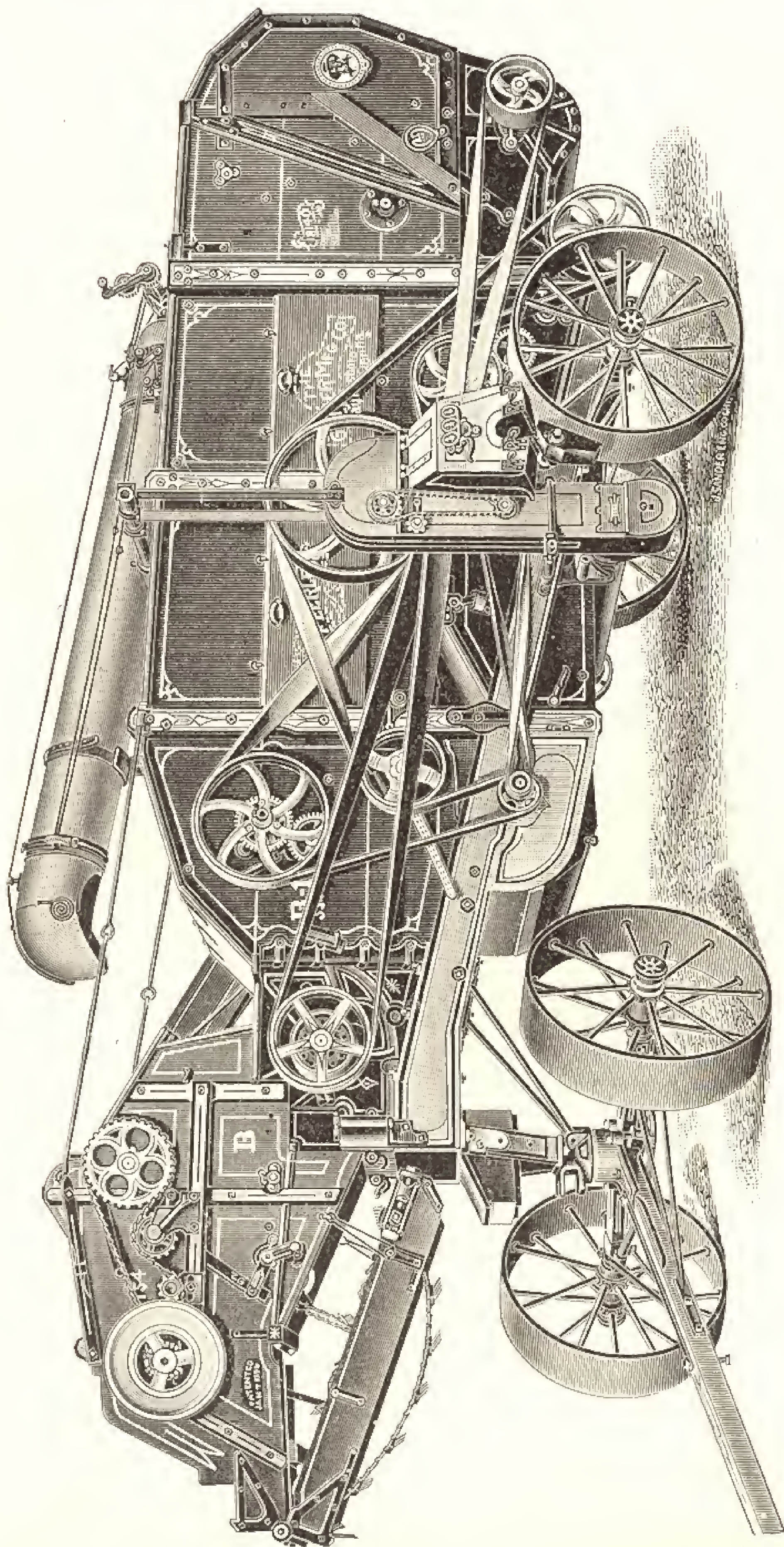
Three concaves are furnished, also two half and two whole blanks with each machine. The first row of teeth in first concave are reversed to be used at all times in front with the curve toward the feeder.

The Concaves, are so arranged that three concaves, or one can be used. If three are used, place the half blanks between them. To remove the Concaves, (See page 17).

FOR CLEANING RICE

Push the bar at B in as far as it will go and fasten with thumb-nut. This will stop all jar on shoe. Next raise the lever at C until there is sufficient space between the shelf J and the lower roller for the Rice to pass through, (See cut page 14). Next drop the *back half of the Shelf J* by slacking the thumb-nut at E, taking hold of the Shelf by reaching through the round hole in the side of the machine, and again fasten by the thumb-nut at E. For dry grain containing much filth, it may require the shelf J to be raised a little. Next loosen the thumb-nut at F and move the Dividing Bar No. 3, from the short-tooth comb until there is sufficient room to allow the rice to drop through, without allowing sticks of course matter to pass through with the rice. The shoe is now adjusted. After starting the machine, place the lever at A near the top of the rack, then move lever down one notch at a time, until the rice from the auger is clean. Examine the tailings and if you find too much rice in them, it is caused either by the machine not being set level, or the lever at A being too low on the rack, giving too much blast on the shoe, and should be raised a little, or the shelf J is too close to the lower roller not giving sufficient room for the grain to pass through and should be moved back by raising the lever at C a little. If the grain is damp draw out the bar B a little at a time until you have sufficient shake or jar on the shoe to cause the material to move off more freely, but no more, as the less jar there is on the shoe the better it will perform its work. The Automatic Blast Regulator gives a uniform blast on the chaffer independent of variations of speed of machine. The Automatic Weight can be at, or near, the middle of notch lever. (See cut page 16.) To remove coarse matter from the tailings place Rack R (See Fig. 4, page 30) over the tail end auger. To prevent Cracking Rice (See page 19). To separate the screenings and to remove the cheat screen. (See page 15.) The agitators on rear straw rack can be raised a little, if necessary to agitate the straw.

NOTE—For threshing Hard Peas and Hard Beans on Peerless Rice machine, follow directions given for Rice, no change required on machine. But for threshing Soft Peas and Soft Beans on Rice machine (See page 18.)



"NEW PEERLESS" RICE THRESHER WITH WIND STACKER, FEEDER AND "PEERLESS" BAGGER

Showing manner of belting on right-hand Side. Left-hand side is belted same as shown on page 23

For operating the feeder, see directions on pages 35 and 36. For adjusting Belt guide see page 20

NOTE—The pulley on the Grain Auger must be used on the side opposite to which the grain is delivered from the auger. The Bagger can be attached on either side.

The Belt tightener for Belt to drive Wind Stacker Fan is not shown in above cut. See page 25.

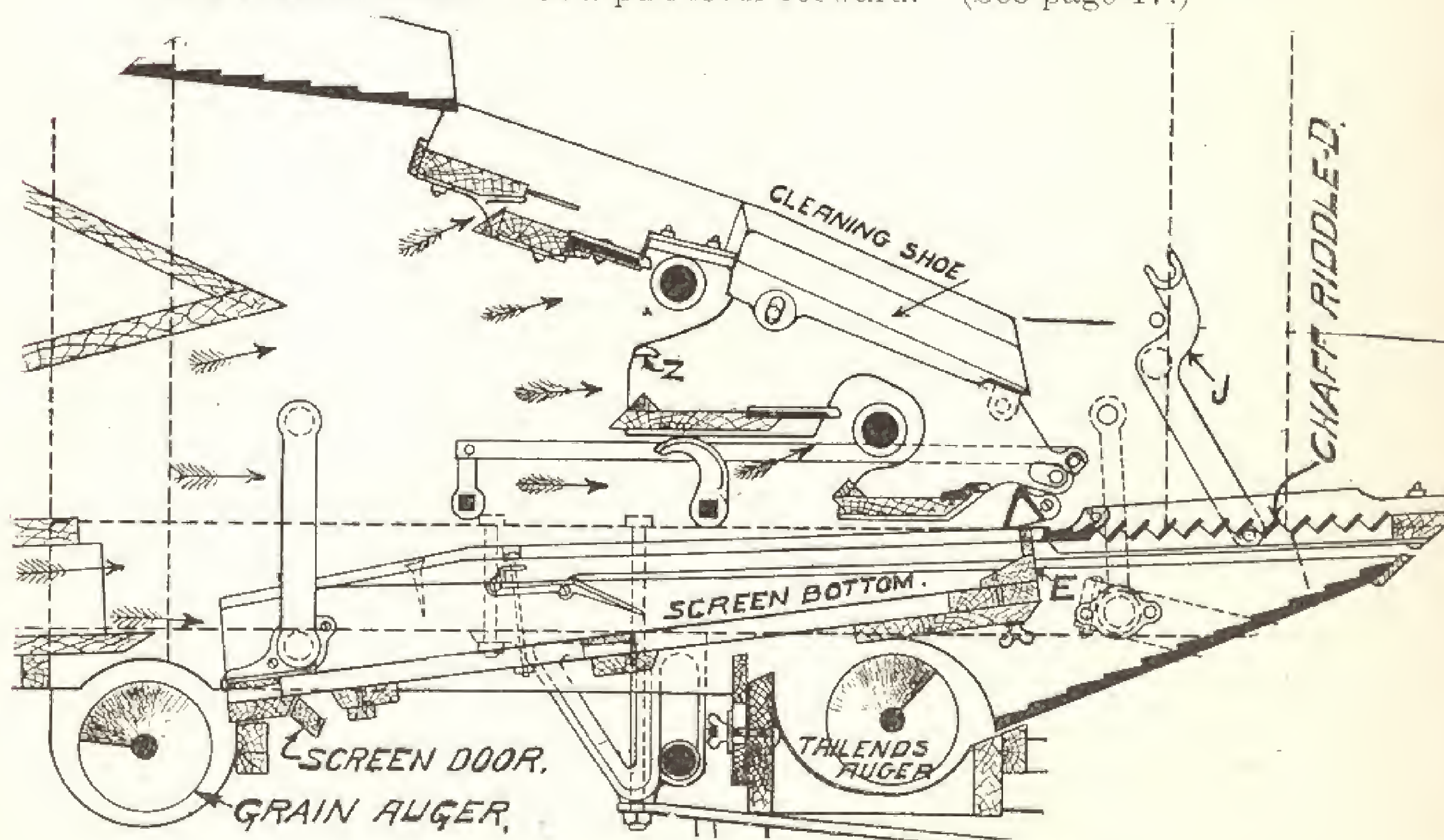
Directions for Operating Nos. 4 AND 5 "GEISER" THRESHERS

Set the machine level. Clean all cinders and dirt out of oil cups and oil all journals with a good heavy body machine oil. Before you start to operate the machine examine it and see that all nuts are drawn up tight, and kept so. Belt the machine the same as shown on pages 52 and 53. All belts must be kept in good condition and sufficiently tight.

SPEED OF CYLINDER

The cylinder speed should be 1200 to 1400 revolutions per minute, according to the condition of the grain. In damp, long straw the cylinder speed can be 1300 to 1400 revolutions, while dry straw requires less speed.

The Concaves should always be placed so that there is one concave in front next to feeder, and if two concaves or more are used always place an open blank between each two. *For Grain*, easily threshed, two concaves are sufficient, *for damp grain*, three concaves may be required. *For grain hard to thresh*, use all the concaves and adjust them as near the cylinder as possible. Should more or less concaves be used always make the change in the rear concaves and be careful to place all concaves so that the teeth stagger, or are not in line. The concaves are raised and lowered by placing spring latch of concave lever in hole marked A. (See page 17.) To remove the Concaves, remove the feed board and the cast iron plate in front of cylinder, then place the spring latch of concave lever in hole marked B and pull lever forward. (See page 17.)



THE NOS. 4 AND 5 "GEISER" WHEAT CLEANER

FOR CLEANING WHEAT

Move the lever at A down, which closes the space between the combs on the shoe and rollers. The spaces at this point must be sufficient to allow the grain to pass through while all coarse material is carried over the rollers. Next move the lever at B down (for dry grain), this takes the jar off the lower part of shoe. Should the grain be wet, move this lever up a little, thus giving the shoe sufficient jar to cause the material to move off more freely, but no more, as the less jar there is on the shoe the better it will perform its work. To regulate the blast see page 48. Letters A, B, C and K are found on outside of machine.

TO REGULATE BLAST

For all kinds of grain and seeds see that the cylinder has the proper speed. Then hang weights on the hook at C sufficient to start the regulator to close a little over the openings at ends of fan. Then very little increase or decrease in weight on the hook at C will change the blast. Should the blast be too strong, add a little more weight, and if too weak, lessen the weight a little just so the blast is sufficient to clean the grain and seeds.

FOR CLEANING OATS

Move the lever at A up until there is sufficient space between combs and rollers to allow the grain to pass through, but not so wide that sticks and straw may be carried through. Move up the lever at B. This will give the shoe all the jar for damp or wet oats. For dry oats about half the jar will be found sufficient. Regulate the speed and blast to suit.

FOR CLEANING RUST PROOF OATS

Move the levers at A and B up as far as they will admit to give the shoe all the space between the combs and rollers and all the jar. Next unscrew the thumb-nut on the middle shelf at lower roller and remove the front edge of the middle shelf. Regulate the speed and blast to suit.

FOR CLEANING AND BEARDING BARLEY

Barley is cleaned the same way as oats, except less space is required between the combs and rollers, and more blast is required. To beard the barley, move the combs closer to the rollers at lever at A. Regulate the speed and blast to suit.

FOR CLEANING MILLET

Move down the levers at A and B. Regulate the speed and blast to suit. If seed is damp, lever at B can be raised a little to jar the lower part of shoe to cause the material to move off more freely, but for cleaning German millet see page 50.

FOR SCREENING THE GRAIN

Turn the button underneath the screen bottom and open the door. Then turn the button in to keep the door open. To remove the cheat screen: Remove the chaff riddle D and bar E, (See page 49) then pull the cheat screen out and replace the bar E and chaff riddle D and bolt fast. NOTE—the thumb bolts under bar E must be kept tight.

TO REMOVE STICKS AND WEEDS FROM THE TAILINGS

Remove the chaff riddle D: To do this see page 49 and in its stead place the stick riddle, which is an extra riddle sent with each machine, and fasten by drawing up the four nuts. Then move the lever at A down. This will cause all objectionable matter to pass over on to the straw carrier.

CRACKING GRAIN

To prevent cracking the grain see that the machine is level. Do not speed the cylinder too high for the amount of grain that is fed into it. The cylinder speed should be according to the conditions of the grain and be fed according to the speed. Very little grain should be turned through the tailings elevator to the cylinder. If the space between the combs and rollers is not sufficient to allow the grain to pass through to prevent the grain from returning with the tailings, move the combs back a little at lever at A, and to prevent blowing the grain into the tailings, reduce the blast.

The cylinder should not have too much end play and should be adjusted by moving the cylinder boxes so that the cylinder teeth pass centrally between the concave teeth.

The end play of the cylinder should be about the thickness of writing paper.

NOTE—Should the tough straw wind the cylinder, lower the grate behind the cylinder at lever K. In other conditions of the grain this grate must remain up.

Pulley on the Grain Auger must be used on the side opposite to which the grain is delivered from the auger.

TO REMOVE CHAFF RIDDLE "D"

Slack the nuts on the two bolts at Clamp Plate, in front, (See cut on page 47) and take nuts off the two bolts at the rear, then pull the chaff riddle up and out.

To remove bar E, remove the two thumb-bolts underneath the bar (See cut on page 47).

FOR THRESHING BUCKWHEAT, HARD PEAS AND HARD BEANS ON NOS. 4 AND 5 "GEISER" WHEAT MACHINE

Parts required:

One Pulley No. 4420 to go on Cylinder Shaft for belt to the engine.

One Pulley No. 5149 to go on Fan Shaft on Tailings Elevator side.

One Fan Belt for No. 4 machine 7 ft. 8 in. x 3 inches.

One Fan Belt for No. 5 machine 9 ft. 4 in. x 3½ inches.

NOTE—If Centrifugal Stacker is used, order:

One Pulley No. 5960 to go on Cylinder Shaft to drive Centrifugal Fan and one piece of belt 7 inches long by 3½ inches.

If Feeder is used, order one Pulley No. 6437 for No. 5 machine to go on Cylinder to drive feeder. NOTE—It does not require change of Pulley on Cylinder to drive feeder for No. 4 machine.

DIRECTIONS FOR OPERATING

Speed the cylinder 925 to 1000 revolutions per minute. Use front concave only, fill the balance of the space with blanks. Operate the cleaner the same as for wheat, except a little more space is required between the combs and rollers. To regulate the Blast see page 48.

FOR THRESHING SOFT PEAS AND SOFT BEANS

On the Nos. 4 and 5 "Geiser" Wheat machine with Wheat or Rice Cylinder, or on the Nos. 4 and 5 "Geiser" Rice machine.

Parts required:

One Pulley No. 8105 to go on Cylinder Shaft for belt to the engine.

One Pulley No. 4419 to go on Cylinder Shaft to drive cleaning Fan.

One Pulley No. 5149 to go on Fan Shaft on tailings elevator side.

For machine with Wheat cylinder order: One front concave filled with No. 41 teeth.

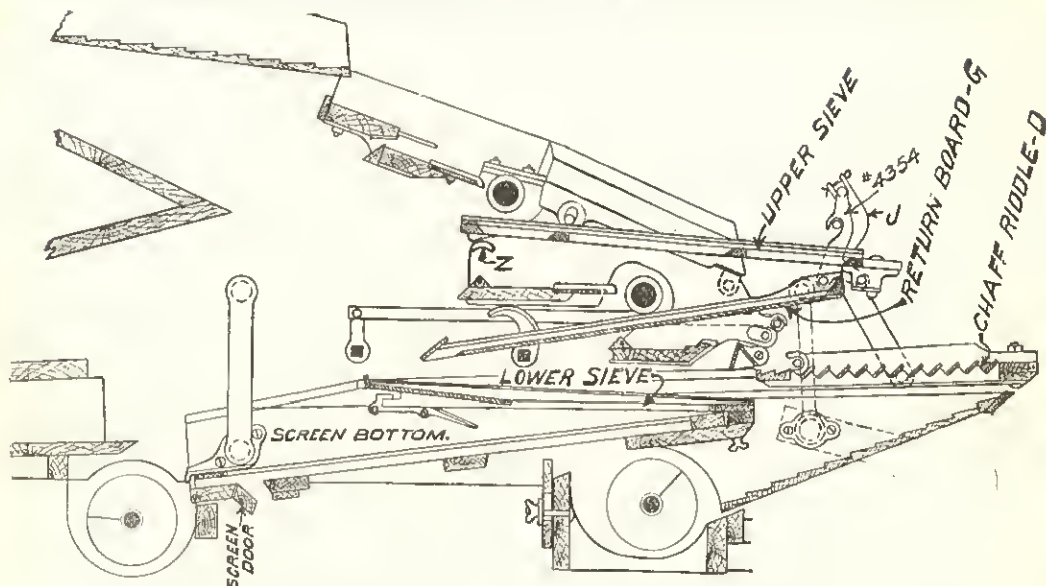
NOTE—If Centrifugal Stacker is used, order:

One Pulley No. 8180 to go on Cylinder Shaft to drive Centrifugal Stacker and one piece of belt 21 inches long by 3½ inches.

If Feeder is used order pulley No. 9248 for No. 4 machine, and pulley No. 8728 for No. 5 machine to go on Cylinder to drive feeder and one piece of belt 12 inches long by 3½ inches.

DIRECTIONS FOR OPERATING

Speed the cylinder 600 to 675 revolutions per minute. Use the front concave only. Fill the balance of the space with blanks. Operate the cleaner same as for wheat (except a little more space is required between combs and rollers). To regulate the Blast (see page 48).



THIS CUT SHOWS THE NOS. 4 AND 5 "GEISER" SEED ATTACHMENT IN THE WHEAT CLEANER SHOE READY FOR OPERATING

FOR CLEANING TIMOTHY

Use Lower Sieve marked "F" Upper Sieve marked "H" and Return Board "G" with hangers No. 4353 and 4354.

FOR CLEANING FLAX

Use Lower Sieve marked "N", Upper Sieve marked "K" and Return Board "G" with hangers No. 4353 and 4354.

FOR CLEANING GERMAN MILLET

Use Lower Sieve marked "P", Upper Sieve marked "H" and Return Board "G" with hangers No. 4353 and 4354.

FOR CLEANING ORCHARD GRASS

Use Lower Sieve marked "R", Upper Sieve marked "Q" and Return Board "G" with hangers Nos. 4353 and 4354.

FOR THRESHING AND CLEANING CLOVER AND ALFALFA

Use Lower Sieve marked "S", Upper Sieve marked "H" and Return Board "G" with hangers Nos. 4353 and 4354. Also remove the Concaves and in their stead use four Concaves with No. 3342 corrugated teeth.

TO PUT IN SEED ATTACHMENTS

First—Move down the lever at A.

Second—Remove the chaff riddle D and Bar E from the Wheat Cleaner. To do this see page 49.

Third—Put the Lower Sieve in the place from which bar E was taken and push the sieve back until the front end rests on the castings attached to each side of the screen bottom (See above cut) and fasten with the thumb-bolts taken from bar E.

Fourth—Place the lower pin of the hanger No. 4354 in the hole on the right of return board G, and lower pin of No. 4353 in the hole on the left.

Fifth—Now place the return board G between the shelf with comb on edge, and the lower roller.

Sixth—Hook the hangers Nos. 4353 and 4354 in the slot on the chaff riddle hanger at J and over the pins and secure with cotter pin.

Seventh—Place the Upper Sieve between the shelf and the upper roller and let the front end of Sieve slide on the cast lugs on the sides of the shoe at Z, (see cut page 50) and place the end with boxes on over the upper pins on hangers No. 4353 and 4354 and turn the buttons and fasten, then put in chaff riddle D and fasten.

DIRECTIONS FOR OPERATING

Move down the lever at B. Speed the cylinder 1200 to 1300 revolutions per minute. To regulate the Blast see page 48.

Nos. 4 AND 5 "GEISER" RICE MACHINES

DIRECTIONS FOR OPERATING

The cylinder speed should be 1100 to 1200 revolutions per minute according to the condition of the rice. In damp, long straw the cylinder can be speeded to 1200, while dry straw requires less speed.

Concaves: First concaves has curved teeth to be used at all times in front with the curve toward the feeder. To arrange the concaves see directions on page 47.

CLEANING RICE

The operation of the shoe for cleaning rice is about the same as for oats (see directions on page 48) except more blast is required and less space between the combs and rollers.

NOTE—For threshing Hard Peas and Hard Beans on Nos. 4 and 5 "Geiser" Rice machines, follow directions given for Rice, no change required on machine. But for threshing Soft Peas and Soft Beans on Rice machine see page 49.

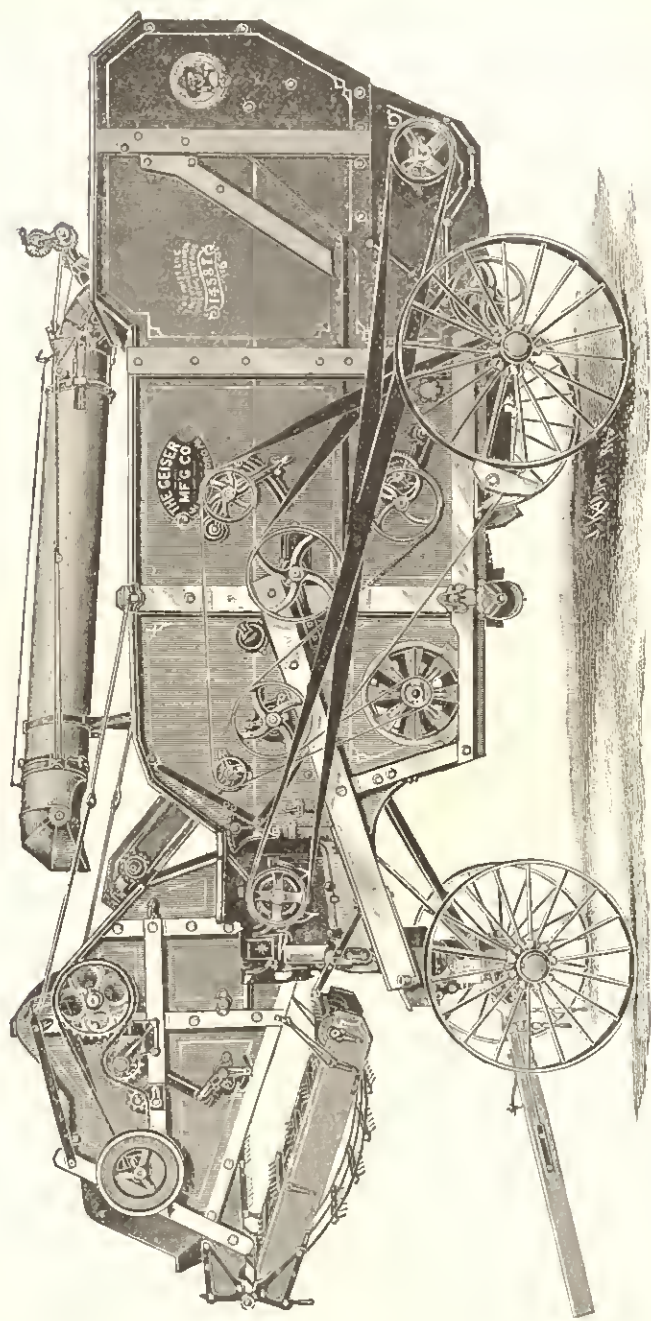
FOR CALCULATING THE SPEED OF PULLEYS

PROBLEM 1—The diameter of the driven being given, to find its number of revolutions. RULE: Multiply the diameter of the driver by the number of its revolutions, and divide the product by the diameter of the driven; the quotient will be the number of revolutions of the driven.

PROBLEM 2—The diameter and revolutions of the driver being given, to find the diameter of the driven that shall make any given number of revolutions in the same time. RULE: Multiply the diameter of the driver by its number of revolutions, and divide the product by the number of revolutions of the driven; the quotient will be its diameter.

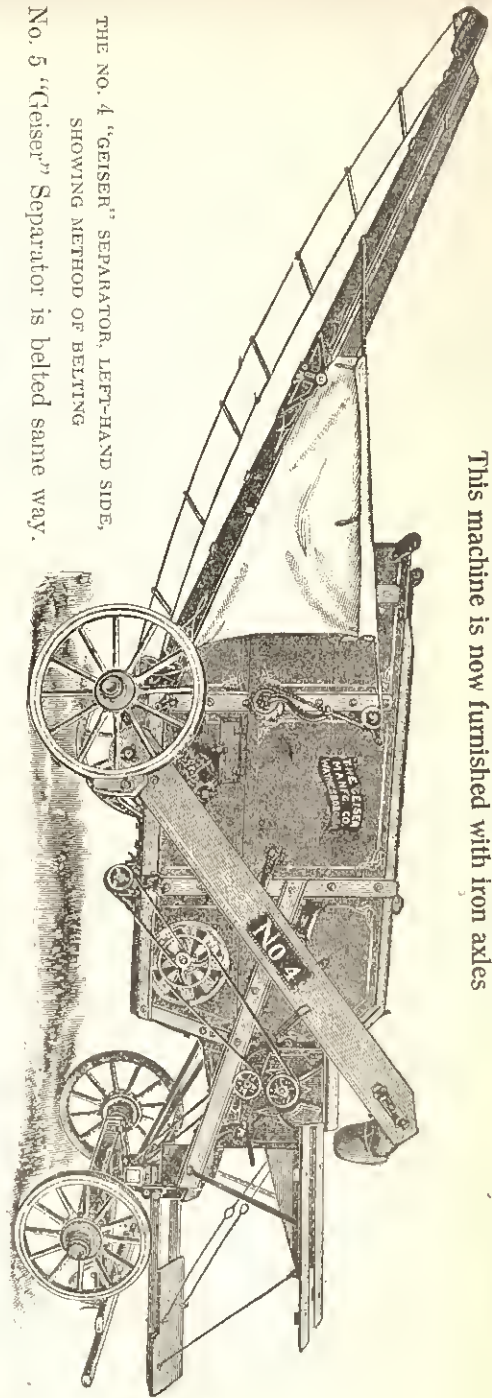
PROBLEM 3—To ascertain the size of driver. RULE: Multiply the diameter of the driven by the number of revolutions you wish it to make, and divide the product by the revolutions of the driver; the quotient will be the diameter of the driver.

This machine is now furnished with iron axles

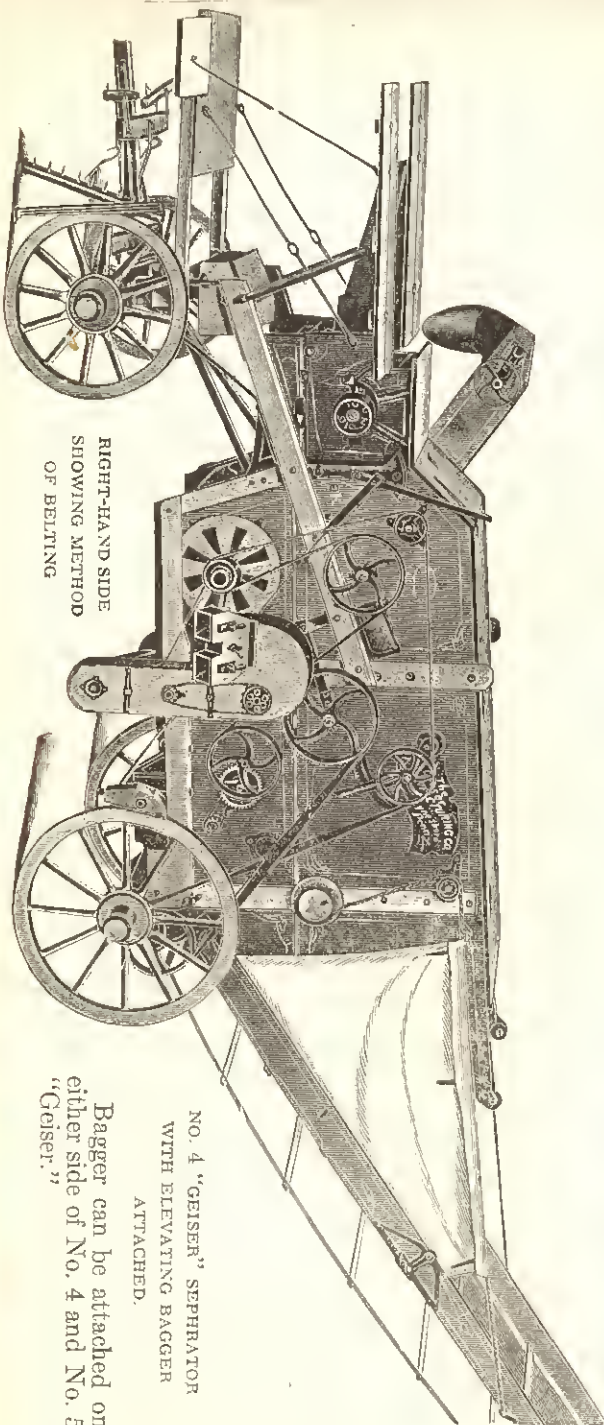


THE NO. 5 "GEISER" SEPARATOR WITH WIND STACKER AND FEEDER ATTACHED, SHOWING METHOD OF BELTING

This machine is now furnished with iron axles



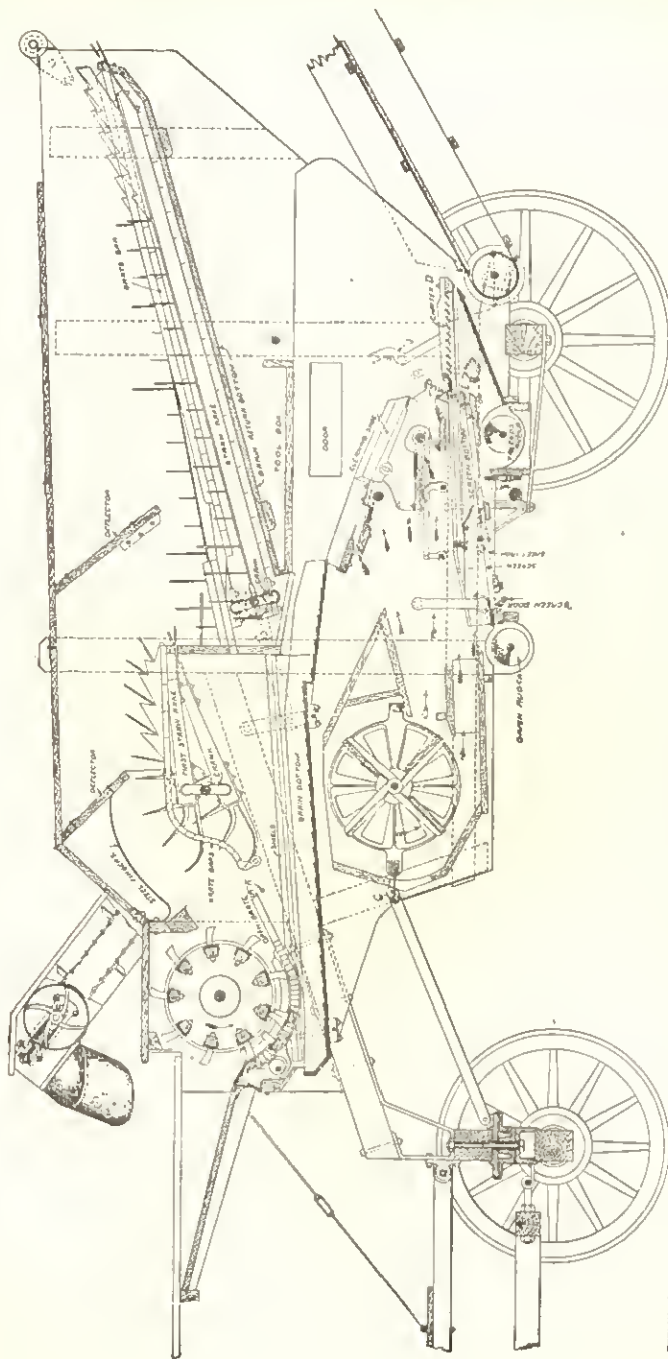
THE NO. 4 "GEISER" SEPARATOR, LEFT-HAND SIDE,
SHOWING METHOD OF BELTING
No. 5 "Geiser" Separator is belted same way.



RIGHT-HAND SIDE
SHOWING METHOD
OF BELTING

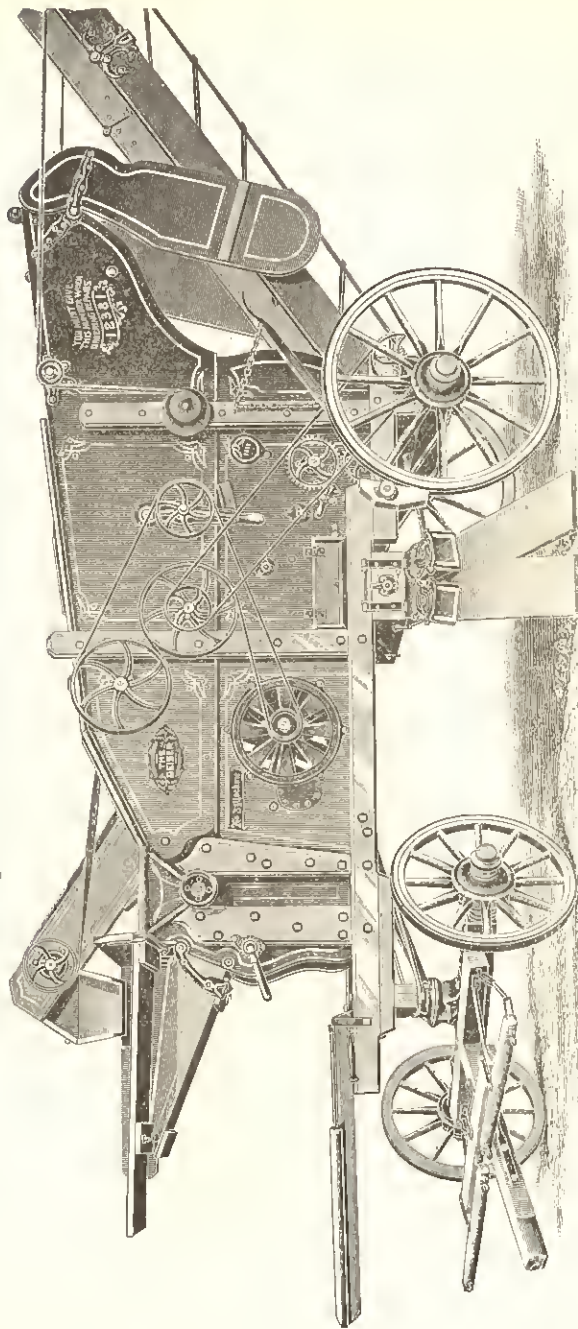
NO. 4 "GEISER" SEPARATOR
WITH ELEVATING BAGGER
ATTACHED.

Bagger can be attached on
either side of No. 4 and No. 5
"Geiser."



SECTIONAL VIEW NOS. 4 AND 5 "GEISER"

This machine is now furnished with iron axles



NOS. 2 AND 3 "GEISER" SEPARATOR SHOWING MANNER OF BELTING ON RIGHT-HAND SIDE

Left-Hand side is belted from Cylinder to Fan

Directions for Operating
Nos. 2 AND 3 "GEISER" THRESHER

SETTING

Set the machine as nearly level as possible, so that the grain will not incline more on one side of the shoe than the other. The machine can be a little higher behind than in front. For belting see cut page 55. See that all nuts are drawn up tight and kept so. Look after them every day.

OILING

See that all the oil holes at journals are kept open and oiled frequently. Tallow should be kept in the cylinder boxes, but do not depend upon it alone to prevent heating.

HOW TO CLEAN GRAIN AND REGULATE FAN

The blast can be regulated by the weight on hook in front of fan chamber. Very little increase in weight decreases the blast and vice versa. If cast weights are too heavy, you can use lighter weights, such as washers. The space between the shelves and rollers and combs must be regulated to suit the kinds of grain you are threshing.

Wheat and rye require the shelves and combs to run closer to the rollers and a strong blast.

BELTS

If the belts are too tight the machine will run hard, if too loose they will slip, and the machine cannot do good work. Therefore, it is highly important to have the belts in good condition and proper tension. The belts should be well oiled, yet too much oil at one time will cause them to slip.

FOR THRESHING OATS AND BARLEY

Oats and barley require more space between the combs and rollers, and less blast than wheat or rye.

Open the spaces between the combs and rollers, by the small lever on outside of cleaner; take out the wheat riddle. Regulate the blast to suit.

FOR WHEAT

In order to obtain the best results, see that the fan has sufficient blast. The cylinder should run 1400 revolutions per minute. If very dry it should run a little less.

FOR THRESHING BUCKWHEAT, HARD PEAS AND HARD BEANS

Parts required:

One Pulley No. 10059 to go on Cylinder Shaft for belt to the engine.

One Pulley No. 5161 to go on fan shaft on tailings elevator side, one fan belt 7 ft. x 2½ in., one blank coneave.

DIRECTIONS FOR OPERATING

Speed the cylinder 860 to 930 revolutions per minute. Use front concave only, and fill the space with blanks. Operate the cleaner the same as for wheat except a little more space is required between the combs and rollers. Regulate the blast sufficient to clean the grain.

FOR SCREENING WHEAT

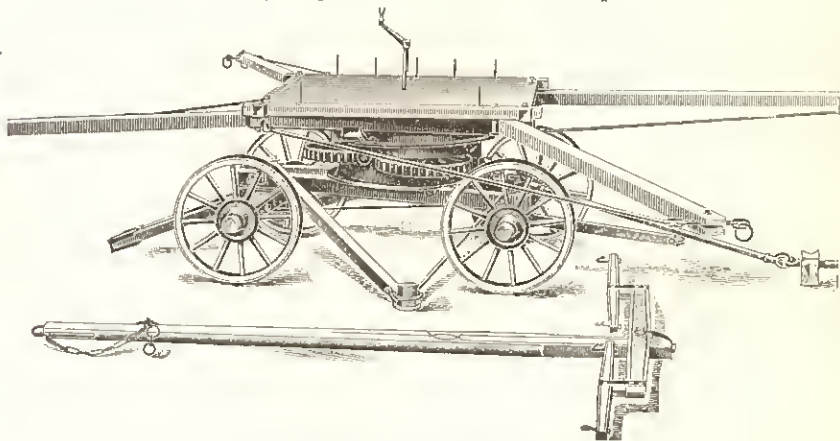
Under the perforated bottom or screen that carries the cleaned grain to the grain hopper is a hinged bottom held up against the screen by two buttons underneath; loosen these buttons and let the bottom drop into the sheet iron trough, which will convey the screenings to the center, into a box or half bushel.

FOR TAKING OUT CORNSTALKS AND STICKS

Put in the stick riddle, which is an extra riddle sent with each machine. To do this, loosen the two thumb-nuts that hold the slotted board to the rear of tailings auger case (see sectional view page 59), then move the board down, as far as it will go and fasten with thumb-nuts. Then slack the thumb-nut on the rod beneath return bottom under chaff riddle and raise the rod almost to the top of slots and fasten. Let the return bottom slide on the rod. Now put in the stick riddle, by placing the wood screws into the slots in small iron bars attached to the frame that holds wheat riddle and let the riddle rest on tailings auger case.

When the stick riddle is removed raise the slotted board and lower the rod and fasten.

To thresh grass seed (except orchard grass) set combs close and regulate the blast same as for oats. Should the knocker-plates under the shoe become worn, they should be turned or replaced.



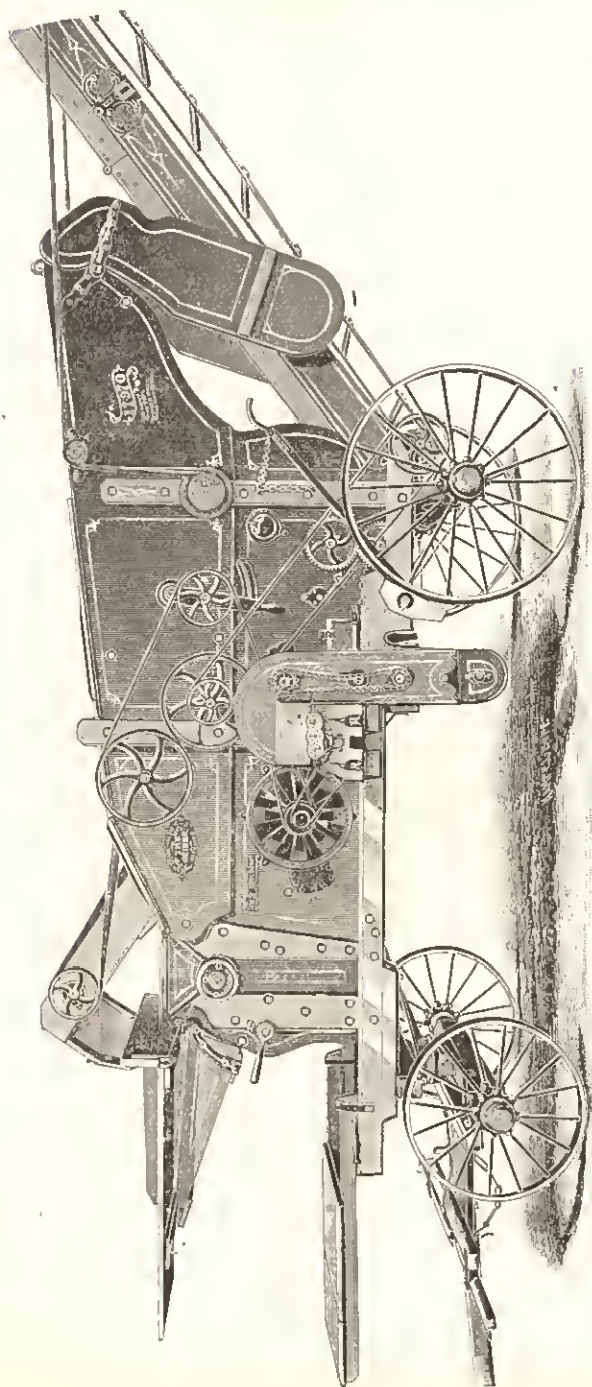
FOUR-WHEELED MOUNTED POWER REPLACING WHEELS

Should it ever be necessary to take out the counter-wheels, be particular to replace them again in their original position. This may be known by observing that the little warts on top of rim of each counter wheel stand opposite, or point to the center of center pinion. By turning wheels of the power you will notice that the warts all come together at once, directly opposite the center of the center pinion, and in this position the wheels should be replaced. If improperly put together the master-wheel may be broken, or the power work hard.

OUR DINGEE-WOODBURY HORSE POWER

is fitted regularly with a 16-cog pinion which gives the tumbling rods 100 revolutions to one of the bull wheel. This with the ordinary speed the horses travel gives the cylinder about 1125 revolutions. We can also furnish a 15 to 17-cog pinion.

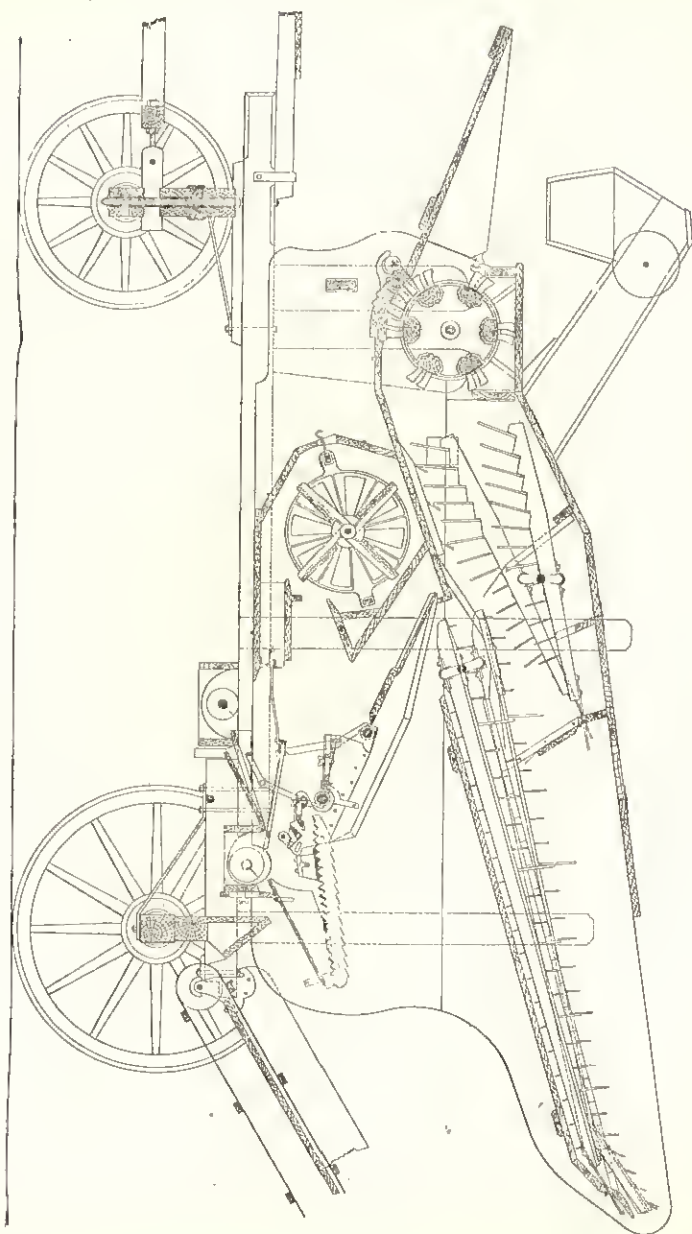
Nos. 2 AND 3 "GEISER" WITH ELEVATING BAGGER ATTACHED

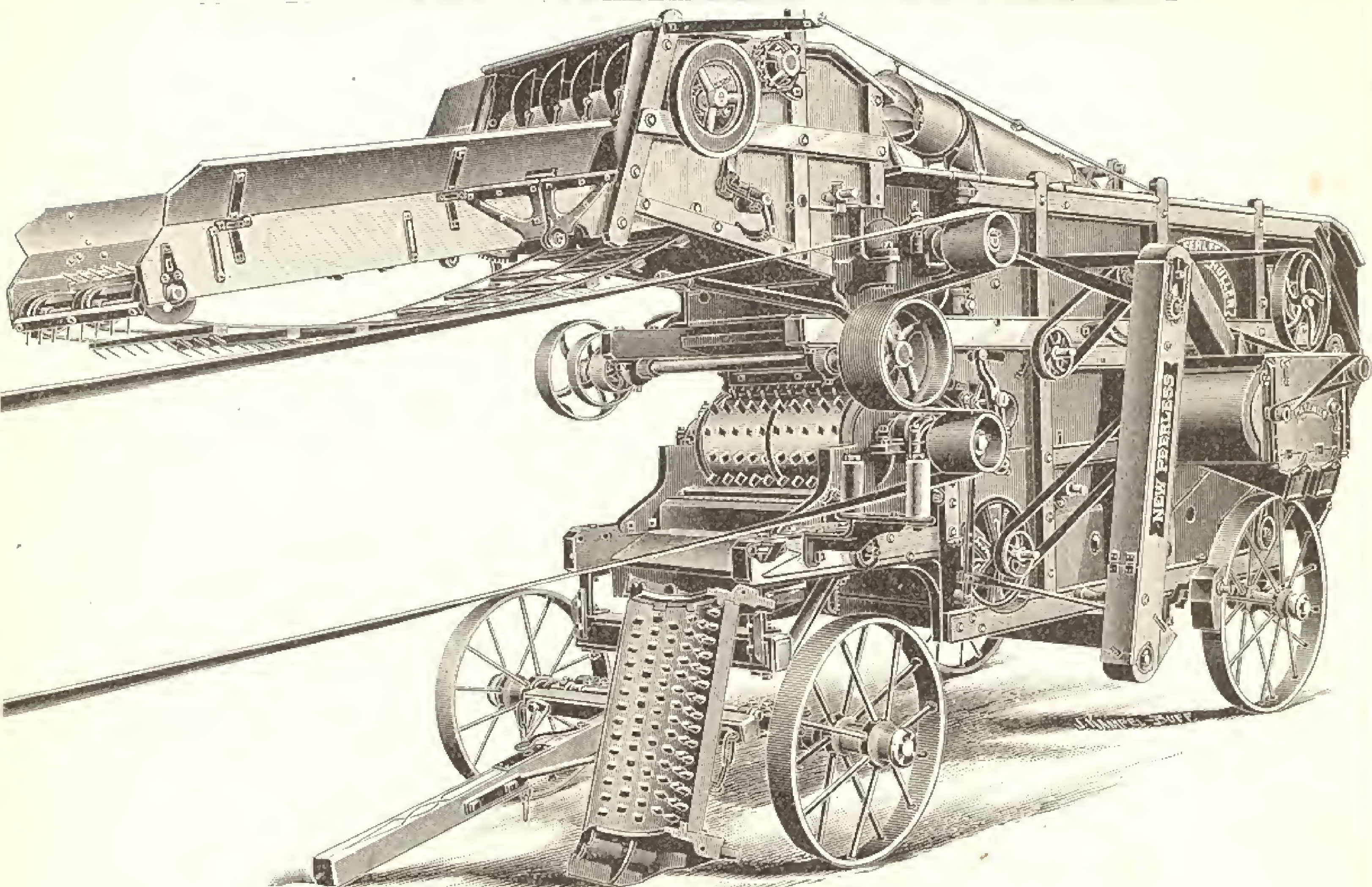


SHOWING MANNER OF BELTING ON RIGHT-HAND SIDE

Bagger can be attached on either side

SECTIONAL VIEW OF NOS. 2 AND 3 "GEISER" SEPARATORS





NO. 6 "PEERLESS" CLOVER AND ALFALFA HULLER—RIGHT OR RECLEANER SIDE
SHOWING SECTION OF CONCAVES REMOVED FROM OVER THE
LOWER CYLINDER AND METHOD OF BELTING

DIRECTIONS FOR OPERATING "PEERLESS" HULLERS

These directions (except special directions for No. 6 "Peerless" Huller) apply to all "Peerless" Clover and Alfalfa Hullers.

Set the huller level, clean all cinder and dirt out of oil cups and oil holes. Oil all bearings before starting huller. See that all nuts are drawn up tight and kept so. See that all belts have just enough tension to prevent slipping. For belting the No. 6 Huller, see above cut and cut page 62. For belting Nos. 3 and 4 Huller, see pages 64 and 65.

SPEED OF CYLINDER

The speed of *Hulling Cylinder* should be ordinarily 1350 revolutions per minute; but if the clover is very dry it may be 50 revolutions slower, or if damp 50 revolutions faster. Use only enough concaves at the upper cylinder, to knock the pods clean from the stems. If clover is dry one concave is sufficient.

TO PREVENT STONE ENTERING THE HULLING CYLINDER

Should stones or other hard substances pass through the upper cylinder, quickly raise and pull forward the rod at the right hand side of cylinder or if rod is connected to feeder pull lever at either side of feeder. This will open the door in front end of seed return bottom and prevent the stones from entering the lower cylinder and allow the Huller to clean itself over the perforated bottom above the riddles. Always see that this door is closed before commencing to hull clover seed.

NOTE—If timothy is threshed with this machine, this door should be left open to prevent the seed from passing into the lower cylinder.

ADJUSTABLE RIDDLES

The top riddle can be adjusted at either end, giving it more or less incline, by slacking the thumb-nuts at the rear for rear-end adjustment, and at the front end by moving it up or down in the notches provided for this purpose. The lower riddle is adjusted to incline at the front end only, by changing from one notch to the other (see sectional view on page 66). Draw up all nuts after making changes.

TO REMOVE STICKS AND WEEDS FROM THE TAILINGS

Move the slatted riddle over the tail-end auger, so it will cover the tail-end box and fasten. For clover that is clean of weeds and sticks move this riddle back.

BLAST REGULATOR

The blast must be regulated to suit condition of seed; if a stronger blast is needed put more weights on the hook on side of Fan Register; if less blast is required remove weights.

THE RECLEANER

Regulate the blast by opening and closing the blind at fan opening. See that the riddle and screens are frequently cleaned.

NOTE—Recleaner has two speeds. If seed is damp and filthy run belt on smaller pulley on the Shoe Crank.

TO TIGHTEN AND REPLACE RUBBERS IN LOWER CYLINDER

Remove plate just above lower cylinder shaft, and plate on end of cylinder, by removing lag bolts and wood screws. Then lower the concaves (see cut page 65). Now rubbers can be replaced and tightened by using ratchet wrench through opening in end of cylinder. To remove rubbers drive them out from inside.

NOTE—To adjust feeder governor, see directions on page 35.

SPECIAL DIRECTIONS FOR No. 6 "PEERLESS" CLOVER HULLER

Provisions are made in riddle shoe for an additional riddle No. 44 (which is an extra) for removing weeds and sticks from the seed. To put in the No. 44 riddle remove board A from bottom of rear end of shoe and board B from top of seed auger case, then push in the riddle under the shields as far as it will go and replace board A and fasten.

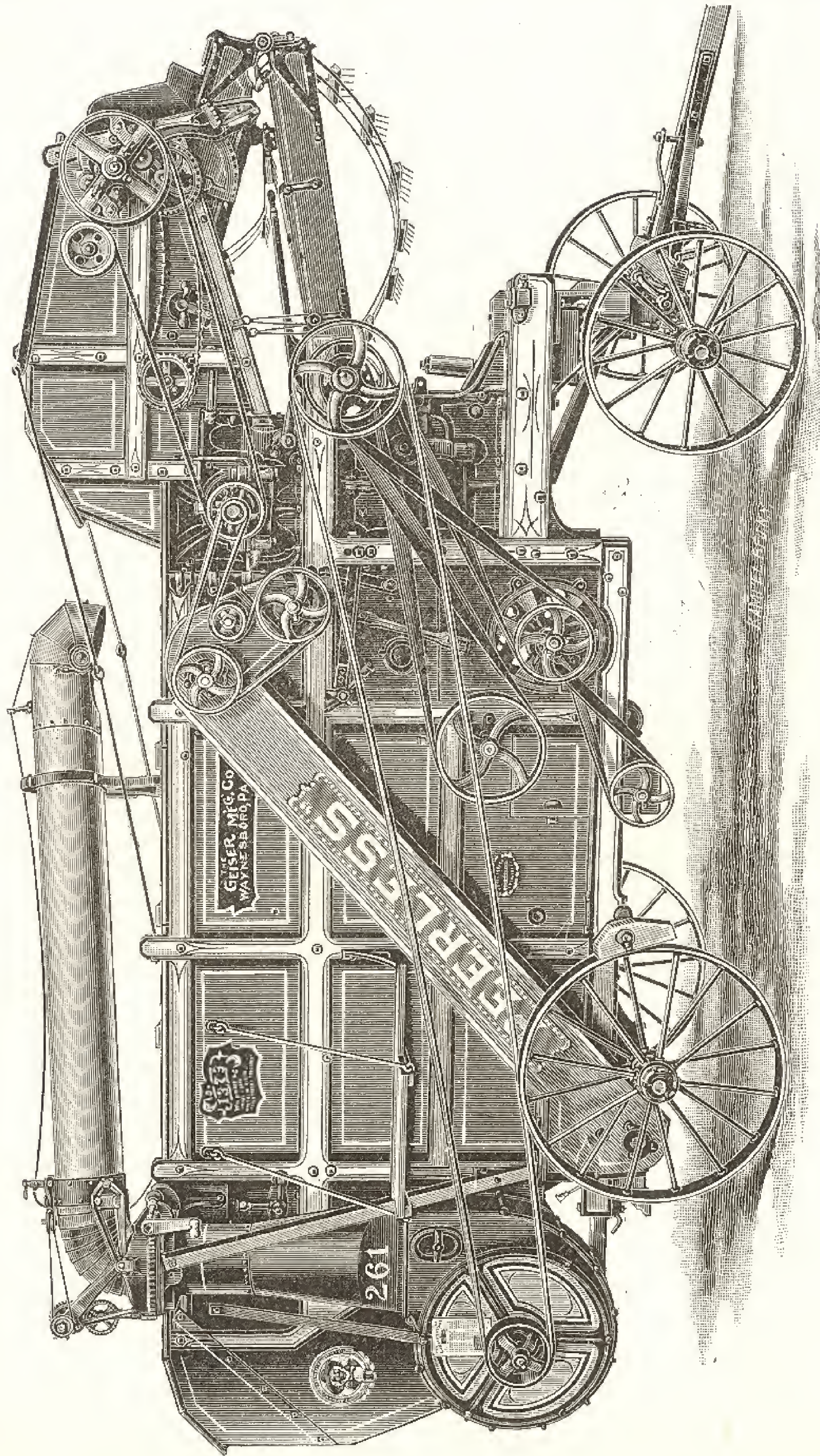
NOTE—When riddle No. 44 is removed replace board B and board A and fasten.

TO REMOVE THE CONCAVE AT UPPER CYLINDER

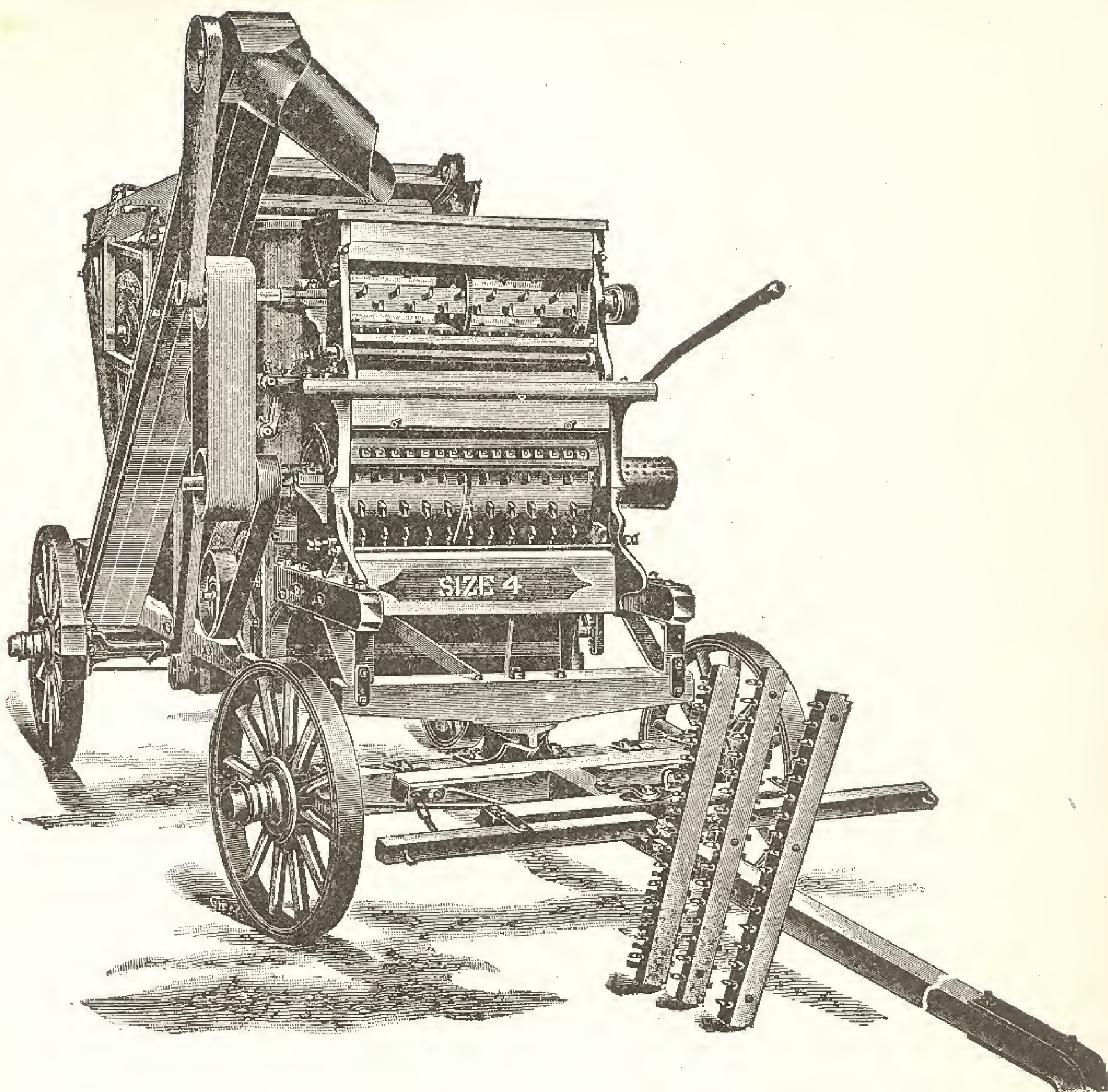
Place the spring latch of concave lever in hole marked B and pull lever forward. The concaves are raised and lowered by placing spring latch in hole marked A. (See page 17.)

TO REMOVE THE LOWER CYLINDER

Remove the plates No. H 439 just above the lower cylinder shaft and the counter shaft from the sills. Then the bolts through the lugs on cast iron cylinder sides and from the sills. Next remove the bolts that hold the cylinder boxes to the cast iron cylinder sides.



NO. 6 "PEERLESS" CLOVER AND ALFALFA HULLER, LEFT SIDE
Showing Method of Belting. For Operating, see Directions on Pages 60 and 61



NOS. 3 AND 4 "PEERLESS" CLOVER HULLER

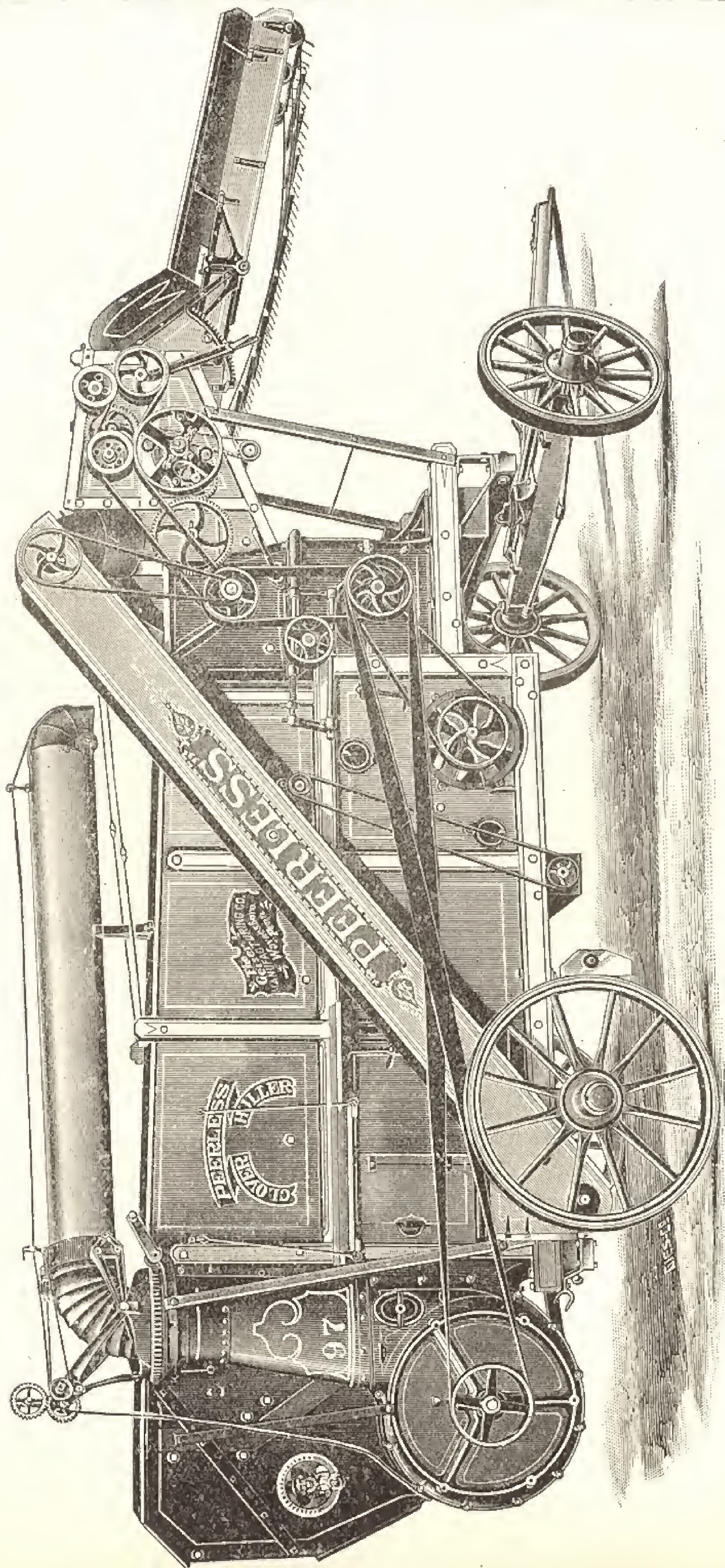
For operating, see directions on pages 60 and 61.

The above cut shows our method of adjusting the lower concaves, and by removing a stay bolt on each side of the Hulling Cylinder and letting down the lower concaves by means of a ratchet on right side, the whole lower cylinder and concaves are exposed as shown.

NOTE—The above applies to all "Peerless" Hullers.

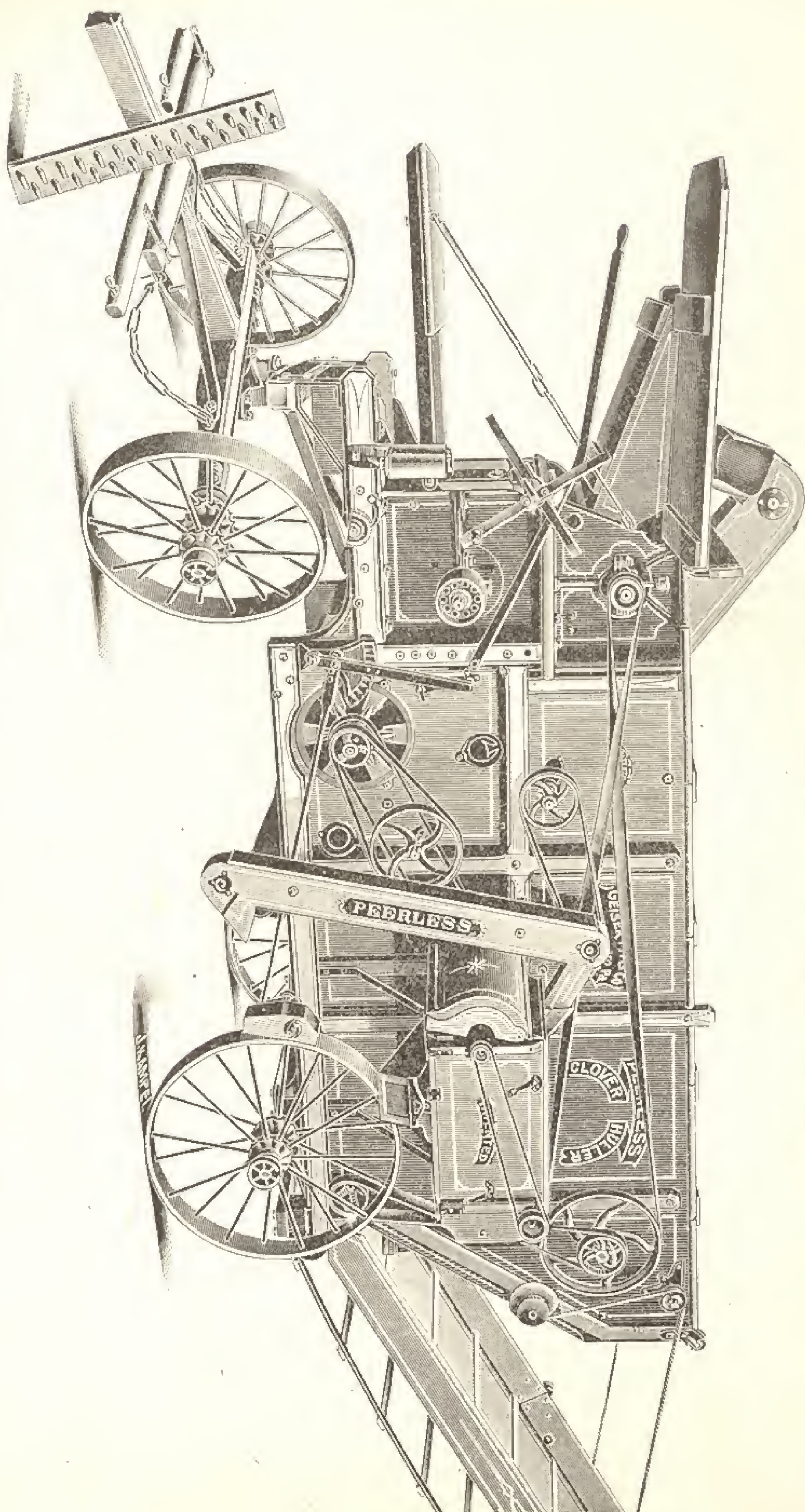
To remove the lower cylinder from Nos. 3 and 4 Huller, first remove the upper cylinder. To do this, remove feed hopper or feeder, then the clamps one on each side that hold upper cylinder sides fast to cap over lower cylinder. Now upper cylinder and sides can be taken off together. Next, remove cap from over lower cylinder, by taking out lag bolts, one on each side, through cap and top of post, and the bolts, one on each side, front of cylinder box saddles. Now take out the bolts that fasten cylinder box saddles to Huller sides and the lower cylinder can be removed.

The Discharge Pipe of Stacker does not telescope and is oscillated by means of the Crank

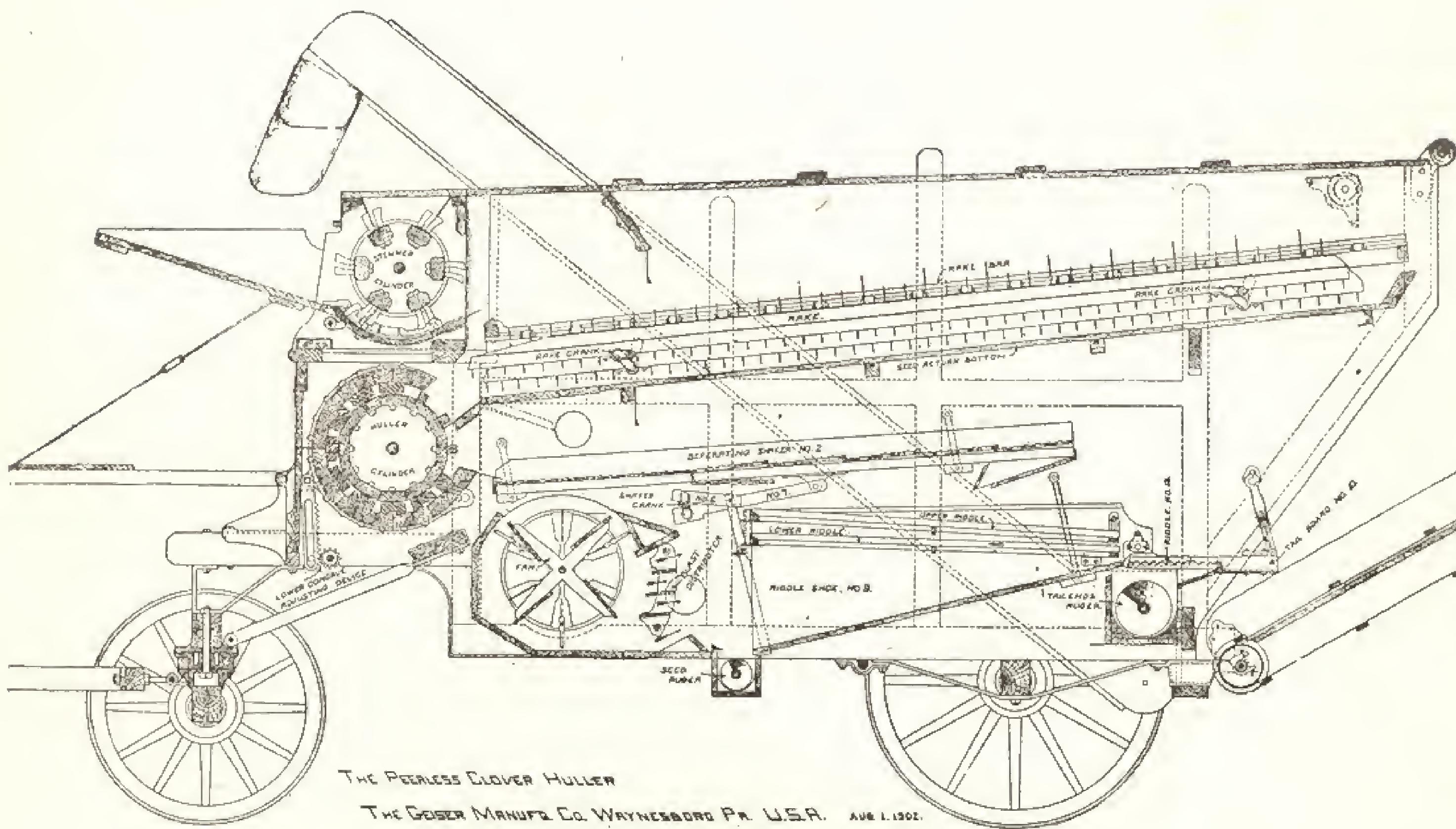


NOS. 3 AND 4 "PEERLESS" CLOVER HULLER WITH WIND STACKER AND "PEERLESS" FEEDER, LEFT SIDE
Showing Method of Belting

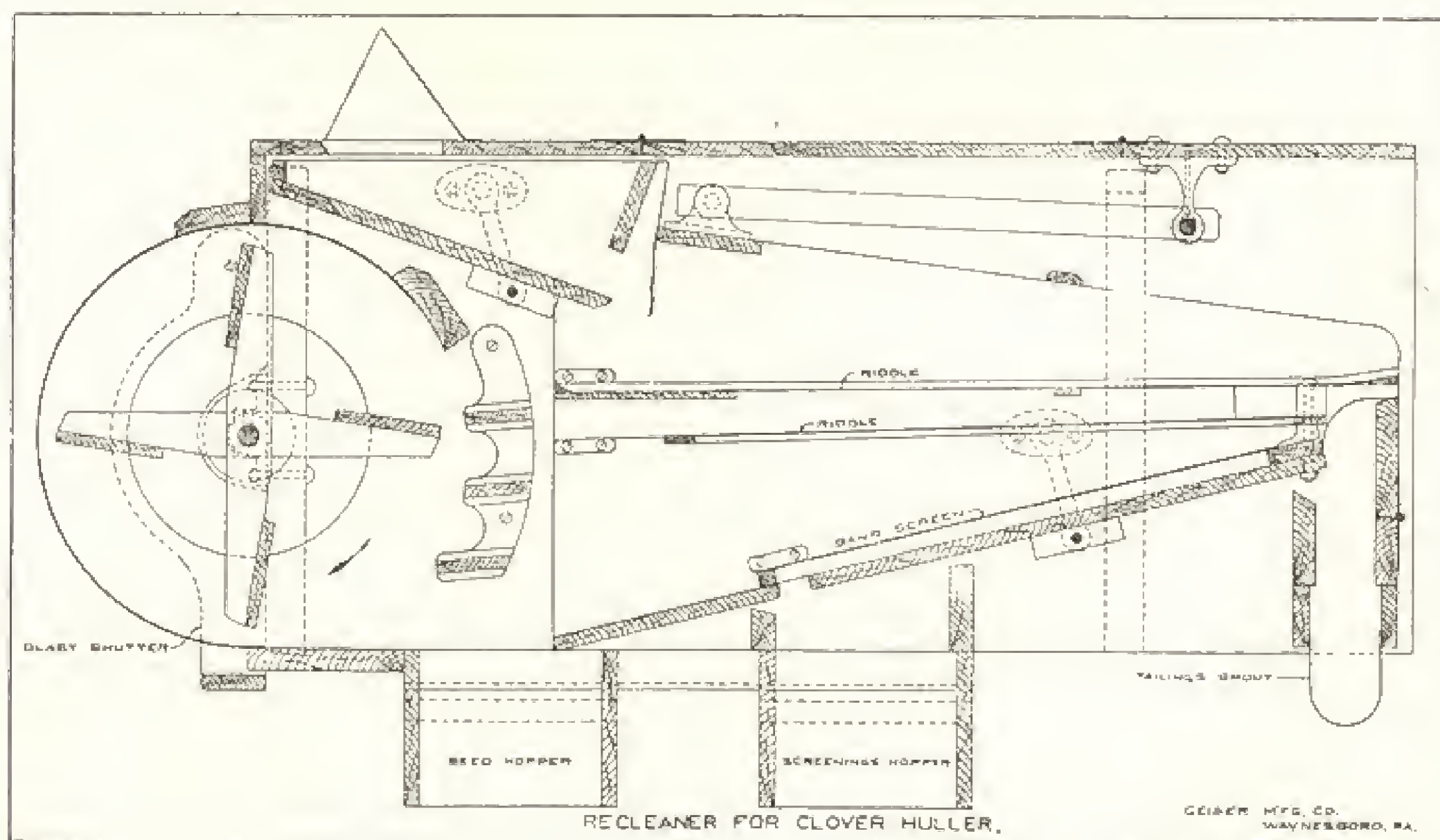
THE "PEERLESS" CLOVER HULLER



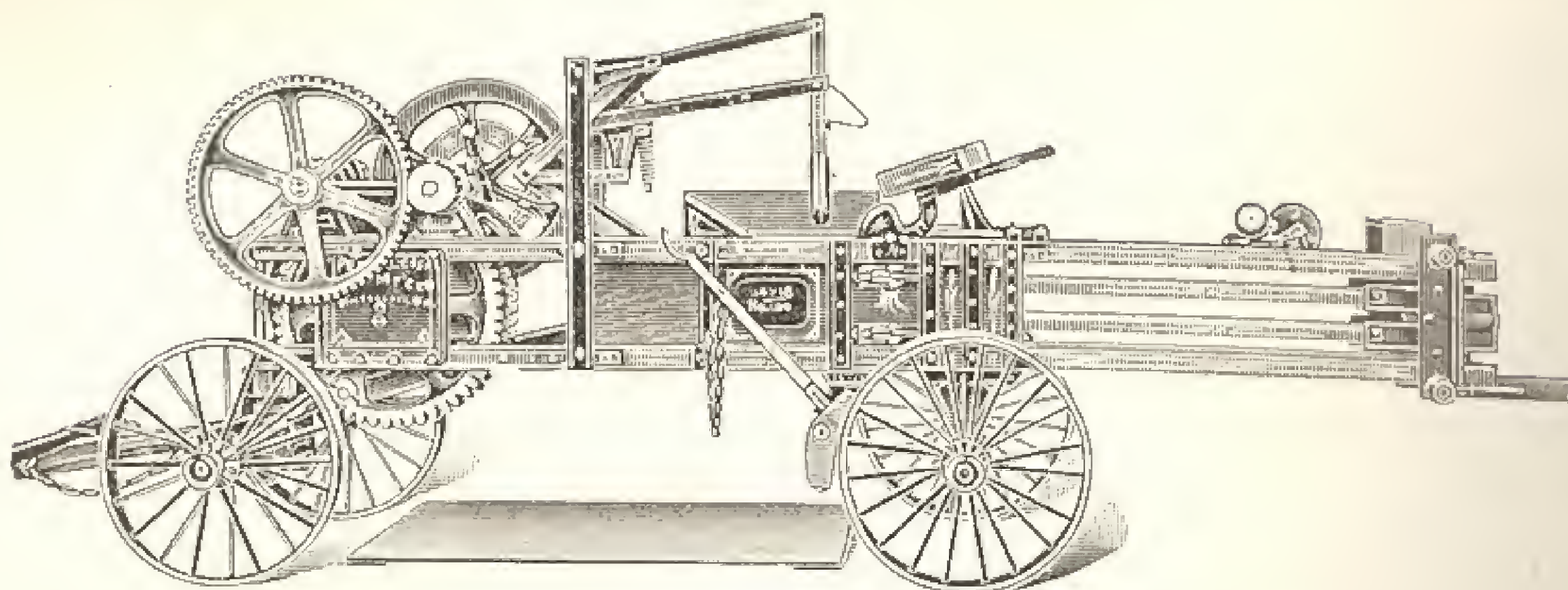
NOS. 3 AND 4 'PEERLESS' CLOVER HULLER, RIGHT OR RECLEANER SIDE
Showing Method of Belting



SECTIONAL VIEW OF NOS. 3 AND 4 "PEERLESS" CLOVER HULLER



SECTIONAL VIEW OF THE RECLENER



THE "PEERLESS" BALING PRESS—IN TWO SIZES, 14x18 AND 17x22

Directions for Starting and Operating The "Peerless" Power Baling Press

When the press is received wipe off all the shafting and bearings, being careful to remove the cinder and grit which have accumulated during transportation, then remove the oil cups from the tool box, fill them from the can of hard oil shipped with the press and screw them in place.

Remove dividing blocks and all other loose parts that may be found inside of baling chamber.

Make rear tension quite loose and drop the bale platform on rear end of press.

OILING

Screw down the caps on the hard oilers until you are quite sure the oil has been forced out over the bearings.

All other moving parts about the press should be well oiled with a good lubricating oil.

Grease the gearing with axle grease to prevent cutting.

BEFORE STARTING WITH POWER

Before starting the press with power it should be operated by hand until the plunger has made several strokes, to see that everything works smoothly.

It is also advisable to put a dividing block in block dropper and have the feeder carry this dividing block into the bale chamber, as by so doing you will see that nothing prevents the block dropper coming into its proper position.

Be careful to see that driving pulley shafts runs in direction as indicated by arrow on fly wheel.

While no injury would result from reversing the motion while starting, it should be avoided as much as possible.

For good speedy work the pulley shaft should make about 500 revolutions per minute.

This gives about 21 plunger strokes per minute which we regard as the most satisfactory speed.

FEEDING THE PRESS

To feed the press properly the hay should be placed over the feed opening in uniform charges of such size that about fifteen will be required for a bale of medium weight.

The cast shoes on the lower end of feeder head should be adjusted to suit the kind of hay being baled.

If the bales are heavier on the top than they are on the bottom, it shows that the feeder head does not go near enough to the bottom of the bale chamber and the shoes on feeder head should be moved down.

If you find reverse conditions the feeder head goes too low and the shoes should be moved up so as to give more room between feeder head and bottom of bale chamber.

The man feeding the press should see that only enough hay for one charge is on the feeder's platform at any time.

If the hay should be in hard cakes it should be loosened up before it is placed on feed table and in rebaling charges that have been pressed they should be shaken out with the fork before they are placed on the feed platform.

ADJUSTING THE TENSION

When the press is first filled with hay the rear tension should be left quite loose until the hay commences to fall out of the rear end of press, then draw down the rods which run up and down on the sides of the bale chamber until the cast iron plates fit closely between the cast iron blocks which are riveted on the bale chambers, being careful to see that these tension plates are not clamped between the cast iron blocks as that would prevent the free movement of the plates in and out in regard to bale chamber which is very necessary.

Draw up the cast iron nut which regulates the tension plate a little at a time with the wrench provided for the purpose, until you have the required weight of bales.

All that is necessary in the readjusting of the rear tension from time to time is to loosen or tighten the cast iron nuts as is required.

Always loosen the tension nuts before starting in the morning as damp or wet hay or straw requires much less tension.

TO DROP DIVIDING BLOCKS

Raise block dropper to position for dropping the block as soon as the lower end of feeder head is out of the bale chamber when feeder head is on its upward stroke.

Always see that the hay or straw will not prevent the case of the block dropper from coming down solidly on the top of the bale chamber before raising the handle of block dropper.

It is important to put in a charge of hay immediately after block has been dropped, as this prevents pushing hay into groove of dividing blocks.

LENGTH AND WEIGHT OF BALES

The bales in the different sizes of presses vary in length according to the length of wire used.

For 14" x 18" presses use wire 8½ or 9 feet long and for 17" x 22" presses use wire 9 or 9½ feet long. Use number 14 wire for heavier work and number 15 for medium or light work.

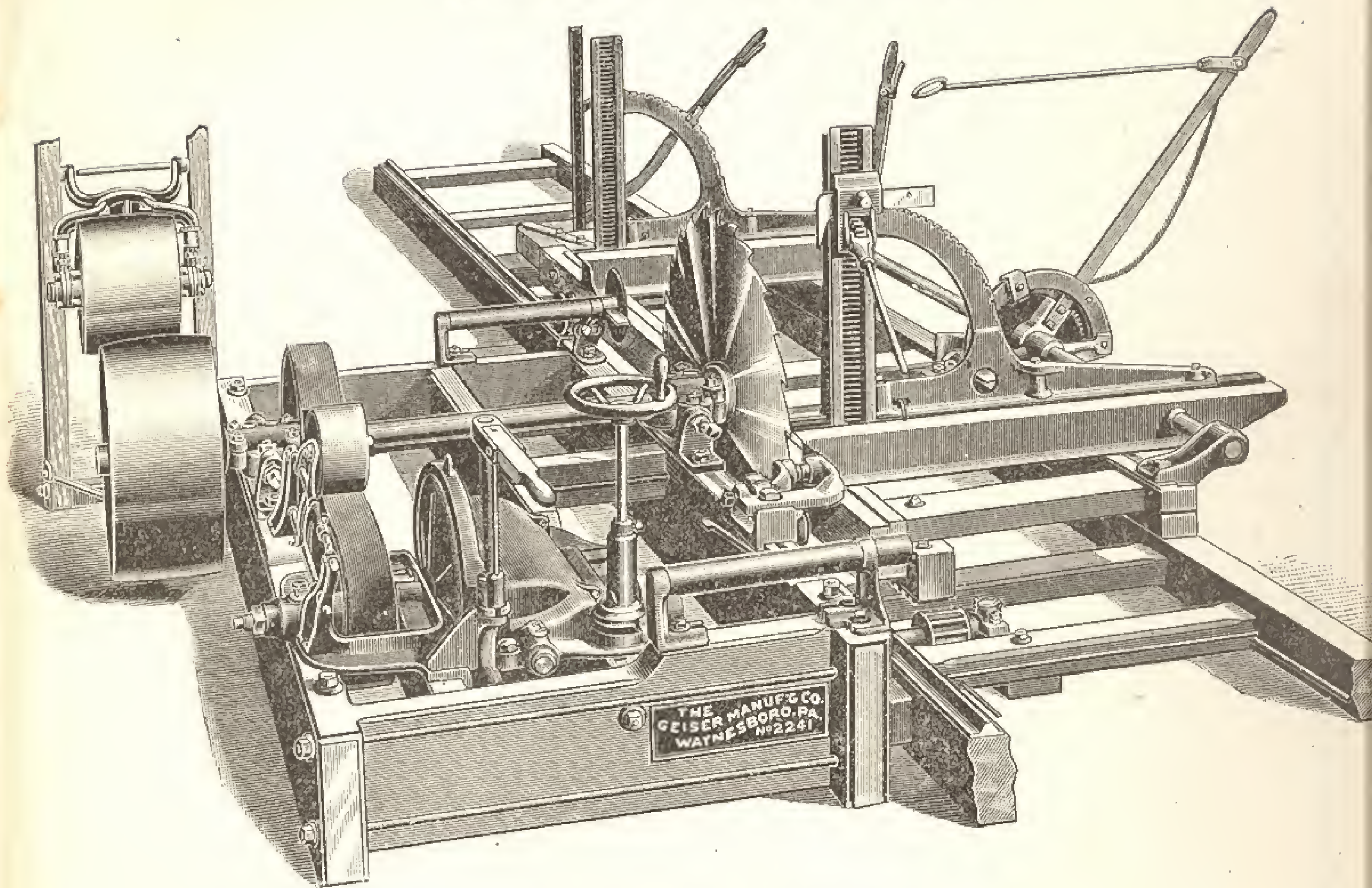
The wheel on bell indicator should be made of such diameter that one revolution of wheel will give the length of bale desired.

For a bale 3 feet in length, which is about standard, the diameter of wheel of bell indicator should be 11½ inches.

LAST BUT NOT LEAST

Always keep bearings and gearings well lubricated and watch your dress to see that all bolts and nuts are drawn up tight.

“PEERLESS” SAW MILLS



NO. 1, OR MEDIUM RACK MILL
WITH SIMULTANEOUS RATCHET HEAD BLOCKS, SINGLE ONLY

This mill is built regularly in three sizes, viz: 20, 25 and 30 feet of carriage. 46, 56 and 66 feet of Ways, is right-hand unless otherwise ordered

Directions for Setting and Operating “Peerless” Saw Mills

The ends of carriage and ways, when more than two sections are used, are marked with a chisel showing how they go together. When carriage is run back to log yard end of ways, the end next to saw is the front. The shafting and castings have numbers cast on ends, which designate how they are to be placed. The short piece of shafting is always placed in front end. This piece (except when carriage is 35 feet or longer), is six feet long, two shaft couplings are used, one on each side of setworks for two headblock mills. The ends of shafting and couplings are marked.

Place headblock No. 1 in front of setworks. See that shafting and pinions are placed with marked ends toward the setworks, key the coupling to shafting so that the keys do not extend through into the keyway of the opposite shaft which is to be held by the two large setscrews in the couplings, this allows ells to be adjusted independently. Move

the first ell out to within $\frac{1}{2}$ " of the point of headblock and draw set-screws in first coupling, likewise the second and third for three head-block mills, then your headblocks will be in line ready for use.

Set the saw frame and the ways level and in line; see that the saw mandrel is perfectly level and that there are no burs or dirt on the collars. Then examine the saw. See that there are no burs around the mandrel or pin holes. Wipe off all dirt from face of saw at center. Then hang the saw, lining it true with carriage. A very good way to line the saw with the carriage is, first, to take all the end play out of the mandrel and run one head-block up opposite the center of the saw. Fasten a square-end stick or piece of board on the head-block so that the end of the stick will be one-eighth of an inch from the saw. Run the carriage back until the stick is twenty feet from the center of the saw; now draw a fine line parallel with the saw, which should strike the end of the stick twenty feet distance.

Should a saw run a little out of true on the rim, it may be made to run true by packing with writing paper between the saw and fast collar.

Adjust the mandrel so as to give the saw a little lead into the log. This lead or deflection should not exceed $\frac{1}{8}$ inch in 20 feet.

Adjust the guide pins clear of the teeth, and close enough to touch the plate at some point in its revolution. This should be done while the saw is in motion.

If the saw warms at or near the center, it is evident that it requires more lead into the log. If it warms near the teeth, it should be led out of the log. The only proper way to change the line of direction of the saw is by slewing the mandrel in the way necessary to accomplish the object.

If these directions are followed it will be found that all saws will give better satisfaction, and saws that are dished on log-side or *vice versa* will stand up and do good work.

Tightening pulley should not be left on feed belt; take it off at night.

SAWS GETTING OUT OF LINE WITH THE CARRIAGE

The drawing of the drive belt has a tendency to get the saw out of proper line—continued pulling in one direction wearing off the journals and boxes (the latter all on one side)—liability of the entire saw frame to move under such a strain, or the bed timbers to give in the ground, calls for constant watching and care, especially in portable mills, they not being generally set up on solid foundations.

SPEED OF SAWS

This as a very important point. We advise a regular speed at all times. If your power is too light to maintain the speed regularly, do not take your governor off and run with a throttle—try the experiment of running your engine at a higher REGULAR speed and you will get better results, both as to quality and quantity.

NUMBER OF TEETH

When sawing the ordinary mixed timber, hard and soft, twelve teeth to every inch of feed is a suitable number, but for very hard timber,

sixteen teeth, and for very soft, eight teeth to every inch of feed will be the proper number. This rule applies to saws not thinner than No. 8 gauge. Saws No. 9 gauge and thinner require proportionately more teeth. Thicker than No. 8 gauge requires less teeth.

THIN SAWS

We do not recommend thin saws with portable mills; they cannot reasonably be expected to stand as much crowding as a thicker saw. A thin saw requires just as much clearance as a thick one; consequently, in proportion to thickness, the thin saw has the most strain to bear. The difference in thickness between 8-gauge and 10-gauge is $\frac{1}{32}$ of an inch, hence the saving in kerf is very small—so small, in fact, that in nine cases out of ten it is offset by reduction in capacity or in poorly manufactured lumber.

As to saving in power, the difference in most cases, is not in favor of the thinner saw, for, being so much lighter, it will deviate from its line much easier, and any deviation, even so slight as to be imperceptible in the length of the cut, will consume by friction, all the power you save in the difference of kerf.

These are plain facts which any man who knows the gauges, can figure out for himself, and we advise every mill man to study the subject well before ordering extra thin saws.

HOW TO BE A SUCCESSFUL SAWYER

1.—Acquire sufficient knowledge of machinery to keep a mill and saw in good order.

2.—It does not follow because one saw will work well that another will do the same on the same mandrel or that even two saws will hang alike on the same mandrel; on the principle that no two clocks can be made to tick alike, no two saws can be made that will run alike.

3.—It is not well to file all the teeth of circular saws from the same side of the saw, especially if each alternate tooth is bent for the set, but file one-half of the teeth from each side of the saw, and of the teeth that are bent from you, so as to leave them on a slight bevel and the outer corner a little the longer.

4.—Never file any saw to sharp or acute angles under the teeth, but on circular lines, as all saws are liable to crack from sharp corners.

5.—Keep your saw round so that each tooth will do its proportional part of the work, or if a reciprocating saw, keep the cutting points joined on a straight line.

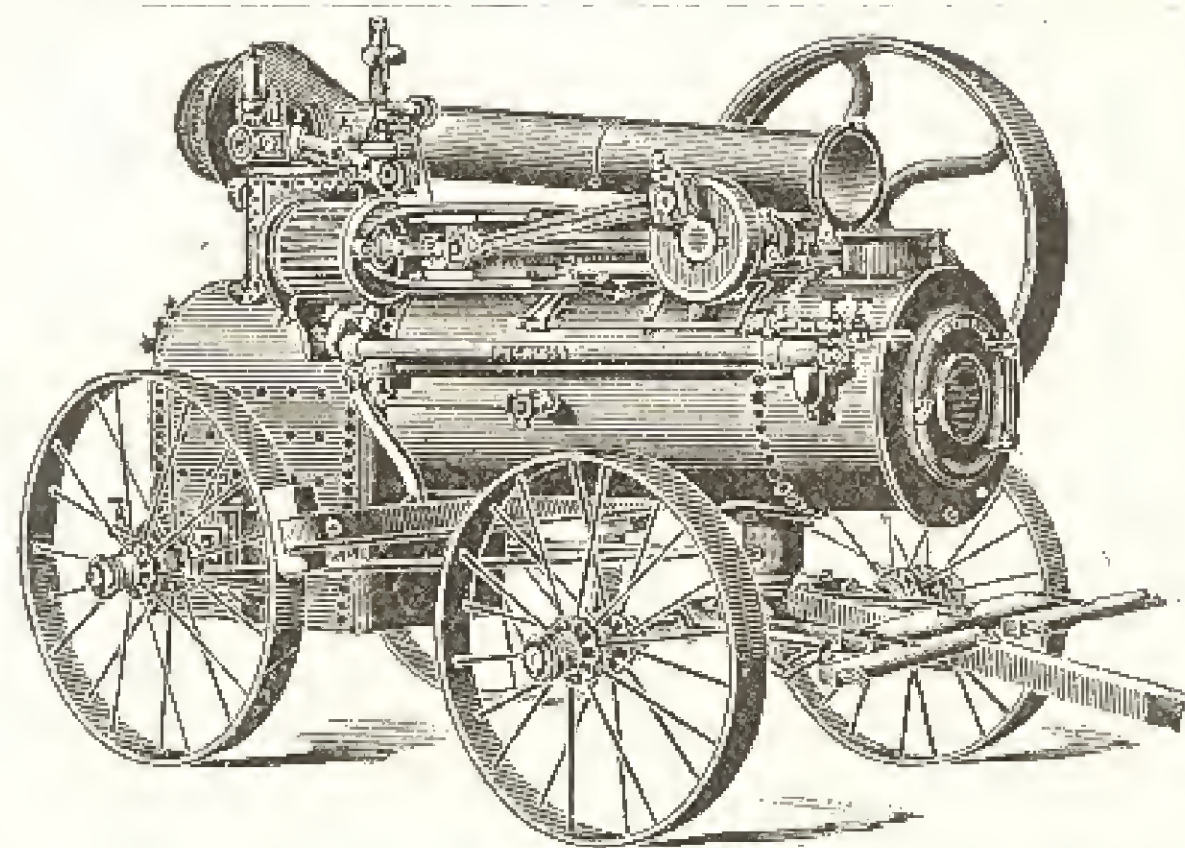
6.—The teeth of all saws wear narrowest at the extreme point; consequently they must be kept spread so that they will be widest at the very point of the teeth; otherwise saws will not work successfully.

7.—Teeth of all saws should be kept as near uniform shape and distance apart as possible, in order to keep a circular saw in balance and in condition for business.

CAPACITY OF CIRCULAR SAW MILLS

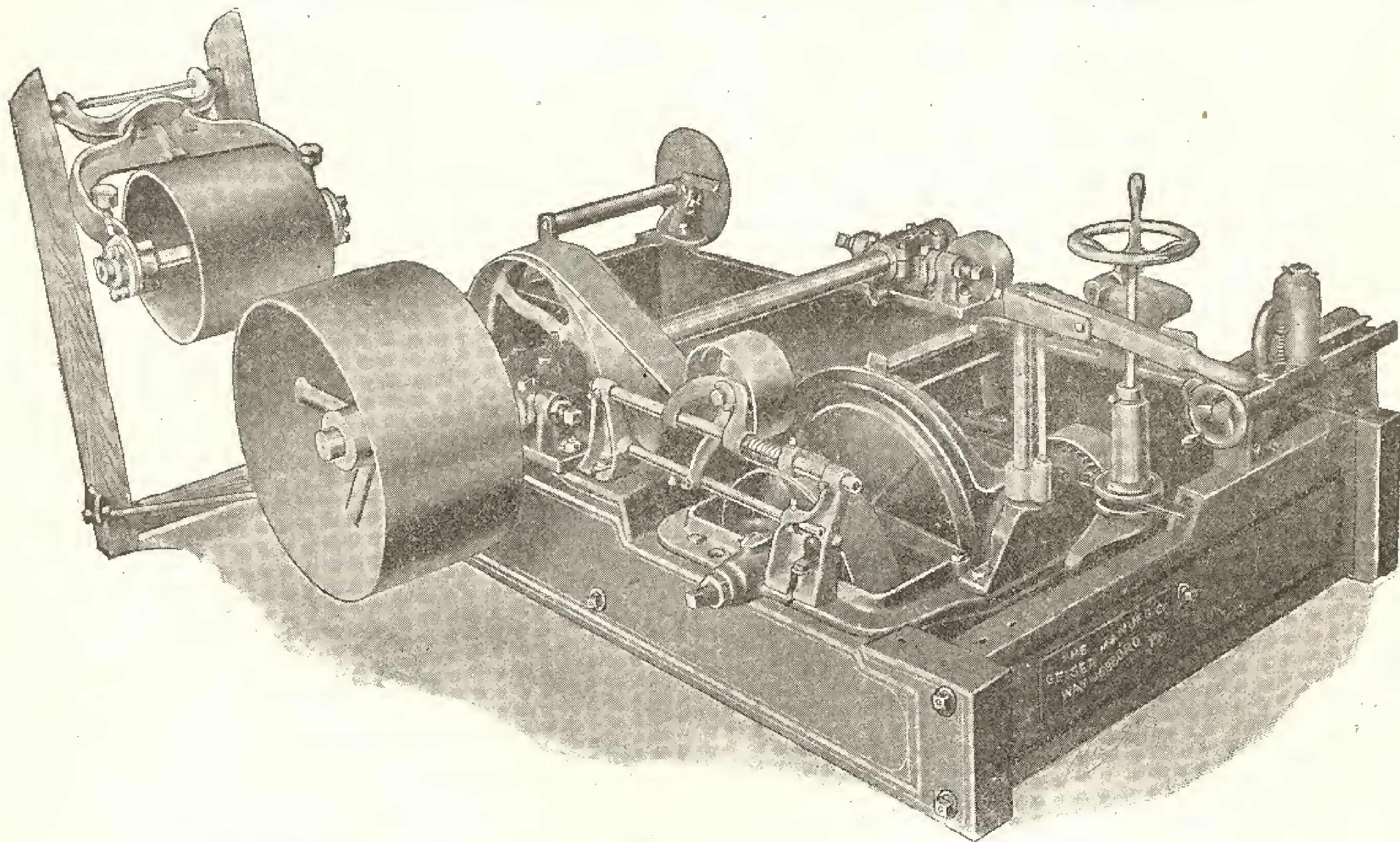
To the Horse Power—"How much lumber to each horse-power will a circular saw-mill cut?" is often asked. In a large mill of 30-horse power capacity, each horse power ought to manufacture 1000 feet of lumber; but in smaller mills proportionately less. A 10-horse power ought to manufacture or saw 5000 feet per twelve hours. The friction

of a small mill being proportionately greater than that of a larger one, the leverage upon circular saws of the same size being the same in each, and the power required to keep up the momentum being the same in both, is the cause of this disproportion in capacity.



FOR CALCULATING SPEED
OF PULLEYS SEE PAGE 51.

"PEERLESS" PORTABLE ENGINE ON WHEELS
SPECIALLY ADAPTED FOR SAW MILLS



THIS CUT SHOWS OUR IMPROVED ADJUSTABLE DRIVE BELT TIGHTENER
AUTOMATIC FEED BELT TIGHTENER AND GAUGE
ROLLER ATTACHED TO HUSK

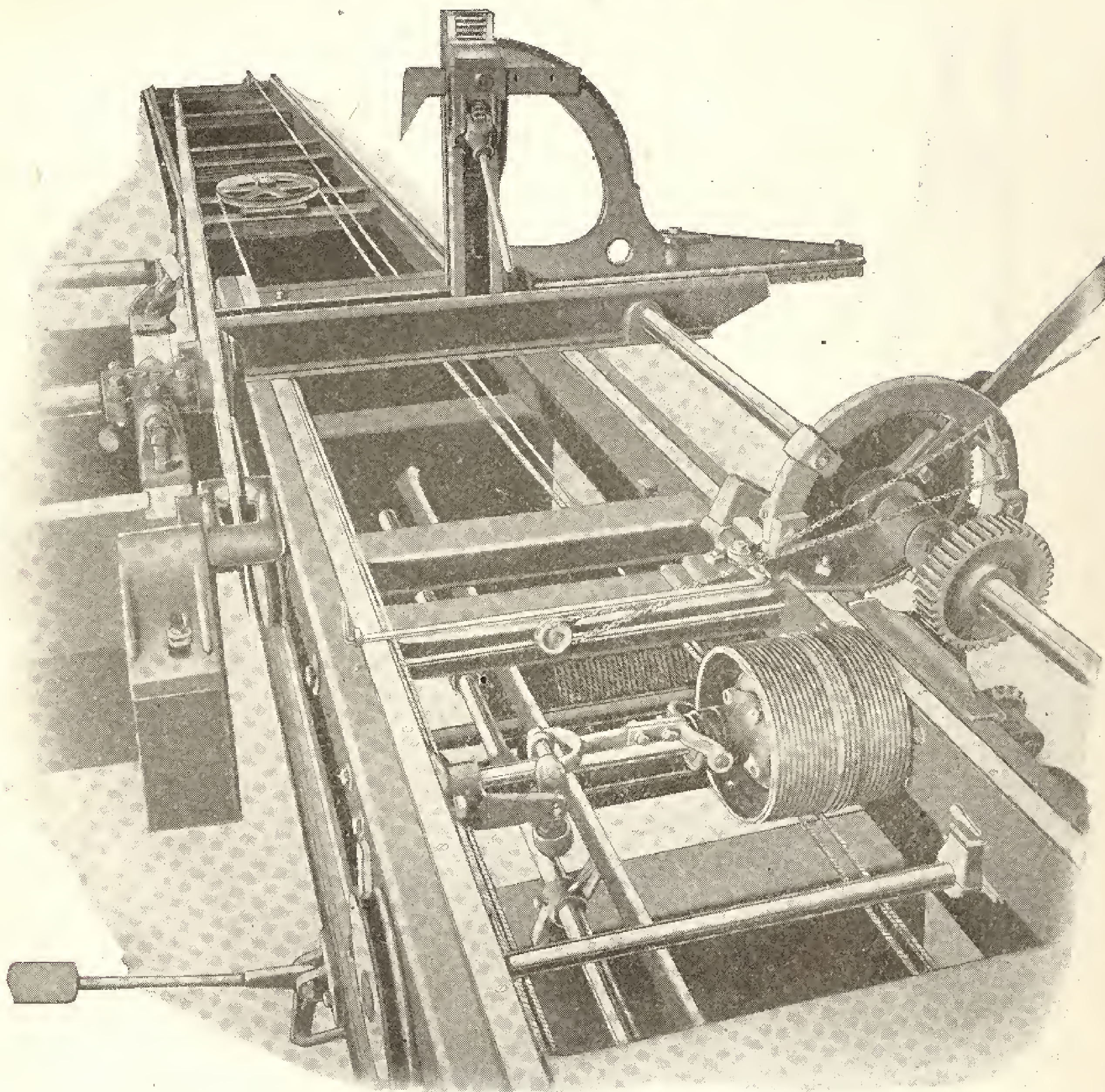
The improved drive belt tightener can be attached to all of our mills by boring $\frac{7}{8}$ " holes in regular wood frame, for the cross rod.

The automatic feed belt tightener requires but one hole to be bored in frame for left hand bracket.

Both are provided with simple adjustments for leading the belt to center of pulleys.

To attach the gauge roller remove the lumber roller brackets and bolt the gauge roller down with the same bolts. The gauge roller stand is provided with lugs to receive the lumber roller. These apply to all of Our mills.

CABLE RECEDER



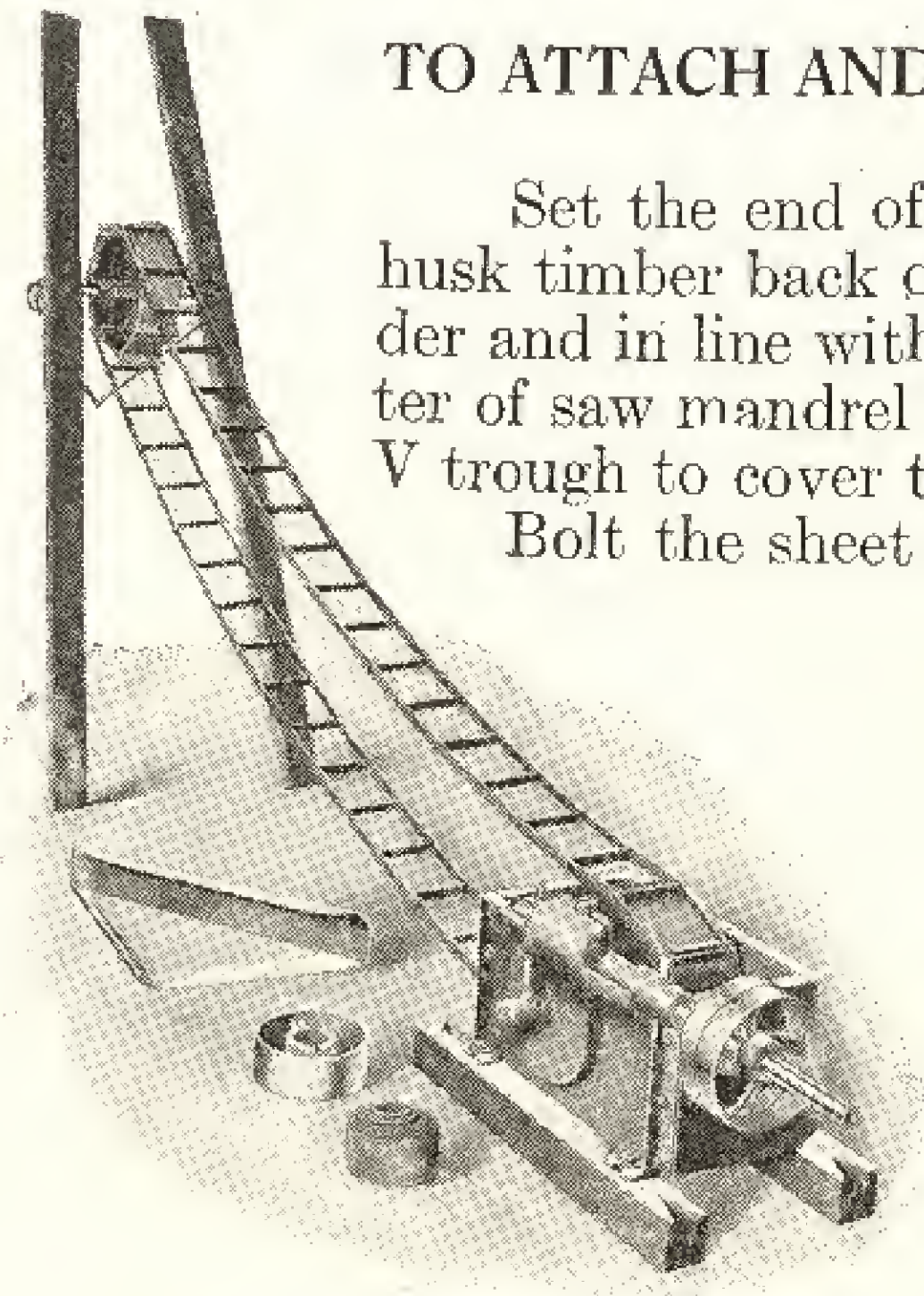
THIS CUT SHOWS OUR SAW MILL WITH CABLE RECEDER ATTACHED READY TO OPERATE

To Attach—Bolt cable rests No. 7485 to cross ties in ways. Then set the carriage equal distance from each end of ways, then fasten one end of $\frac{1}{4}$ inch cable down with two eye bolts in holes provided, then pass the cable under carriage axles and under and around the center of drum (three wraps) then on under axles to a two and one-half inch wood roller at opposite end of ways and draw it tight.

In wrapping the cable around the grooved drum great care should be taken to see that it follows the spiral groove in the right direction otherwise it will under-lap and cut it in two. To avoid this risk best move the carriage forward and back slowly by hand after the cable is on and tightened up.

SAW DUST ELEVATOR

TO ATTACH AND OPERATE SAW DUST ELEVATOR



Set the end of driving box with sprocket even with husk timber back of the saw, with worm shaft directly under and in line with saw mandrel and 36 inches from center of saw mandrel to center of worm shaft. Make a short V trough to cover top of box and sprocket.

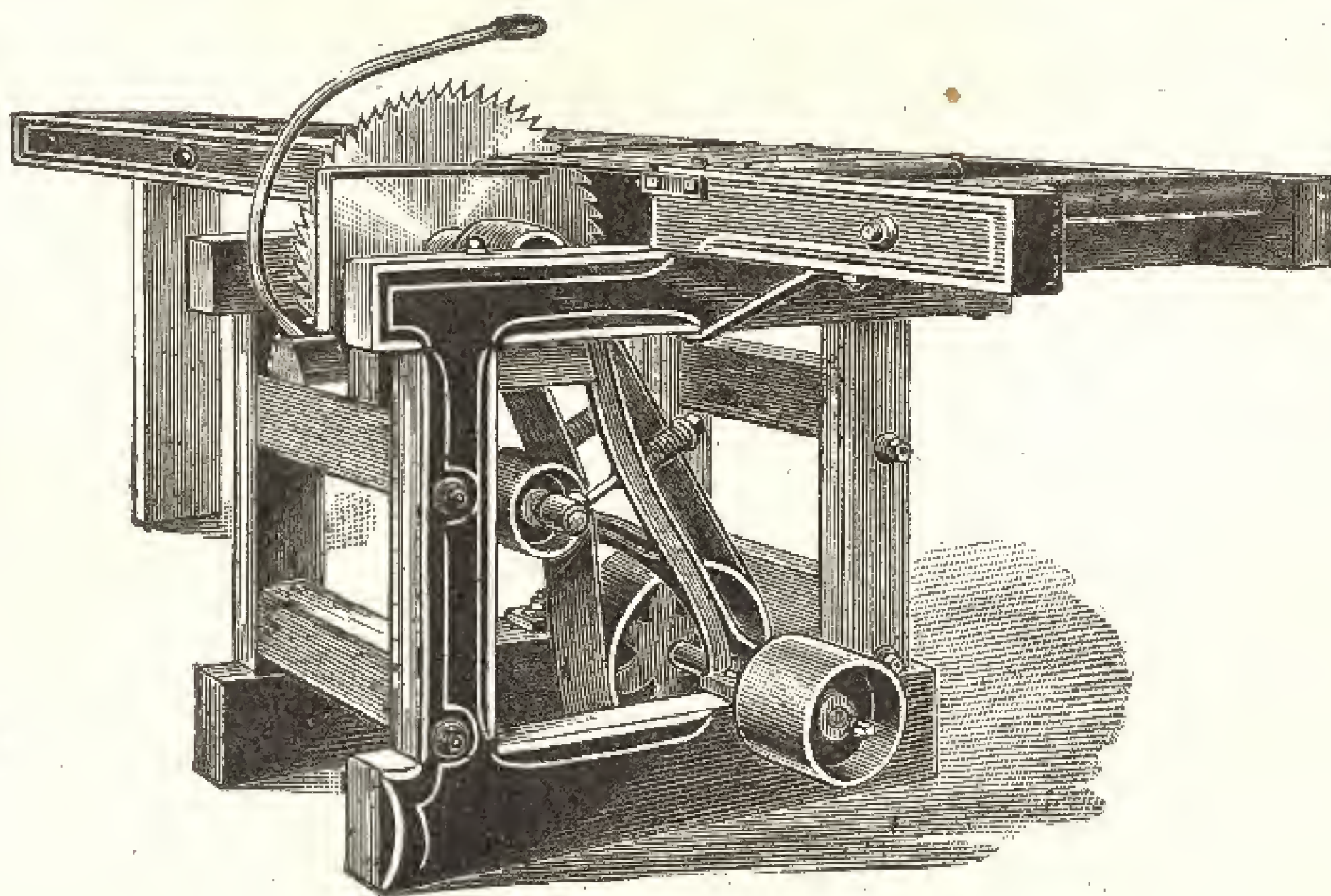
Bolt the sheet iron spout on the husk back of saw so as to deliver the saw dust just in front of driving box on the lower chain.

Place 8-inch split pulley on saw mandrel and drive with straight belt.

A rough board laid under lower chain will reduce the friction and increase its already ample capacity.

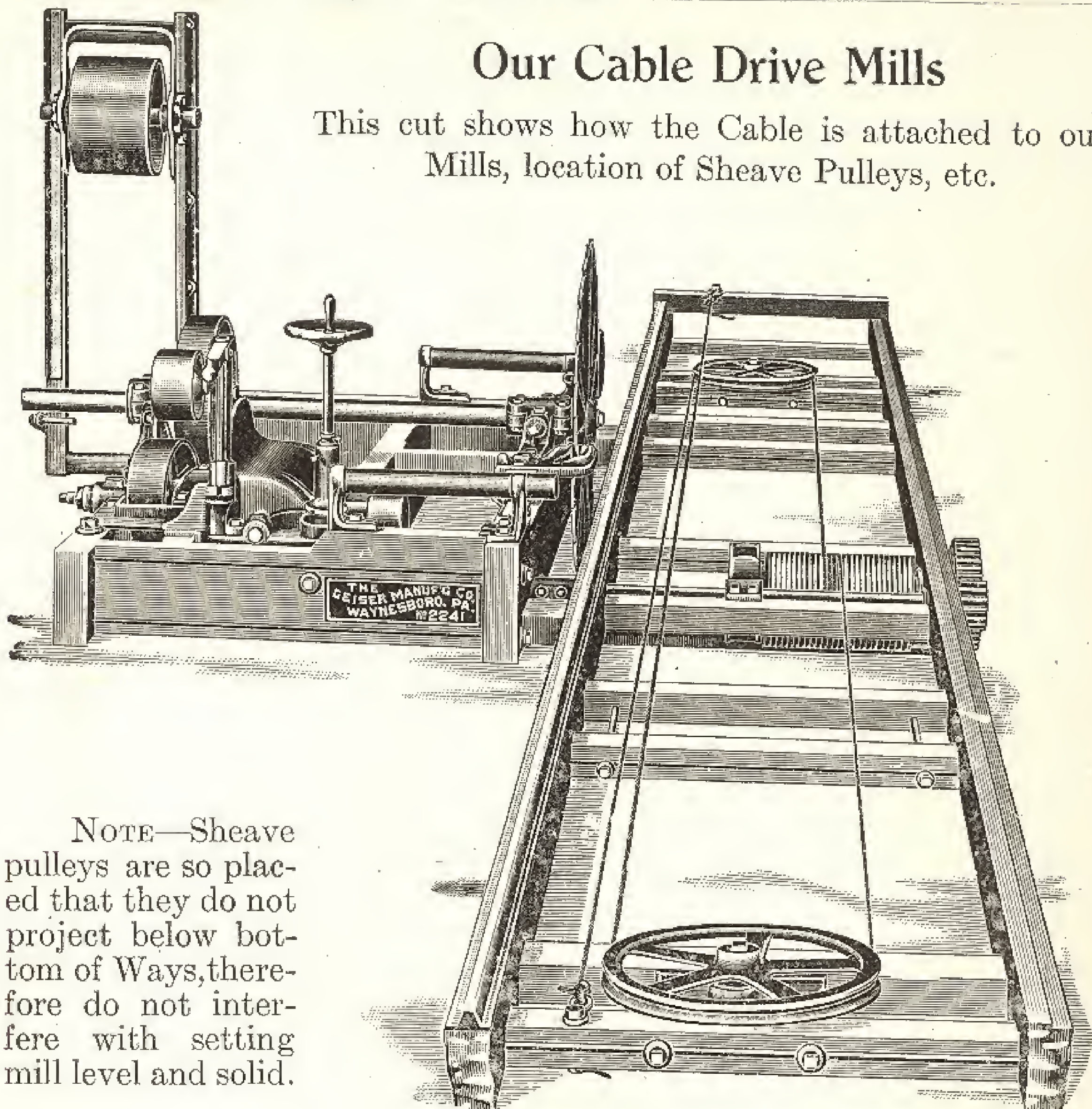
Swinging Cross-Cut Saw

Furnished with 20 to 30-inch Saw, 12 foot table and steel rollers.

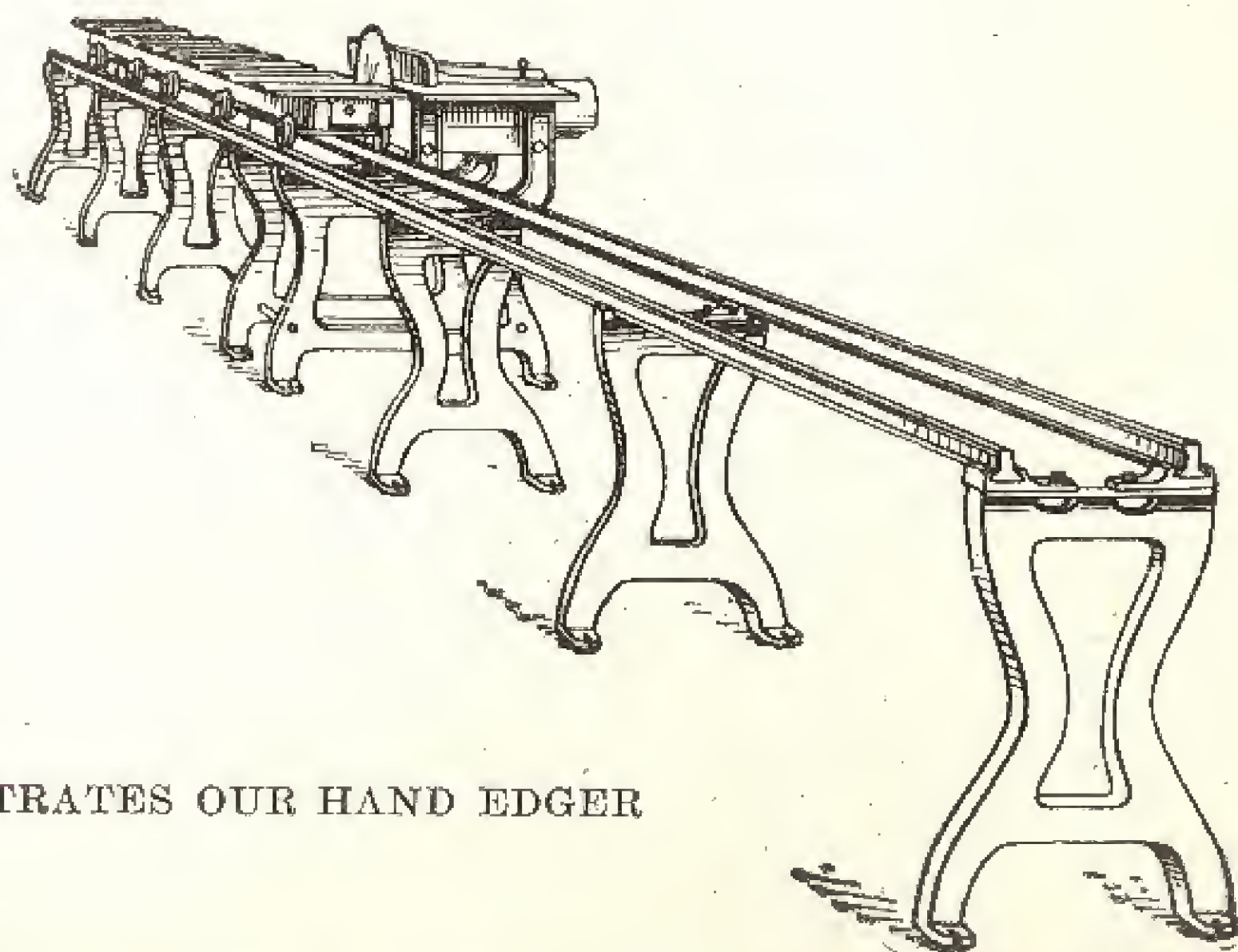


Our Cable Drive Mills

This cut shows how the Cable is attached to our Mills, location of Sheave Pulleys, etc.

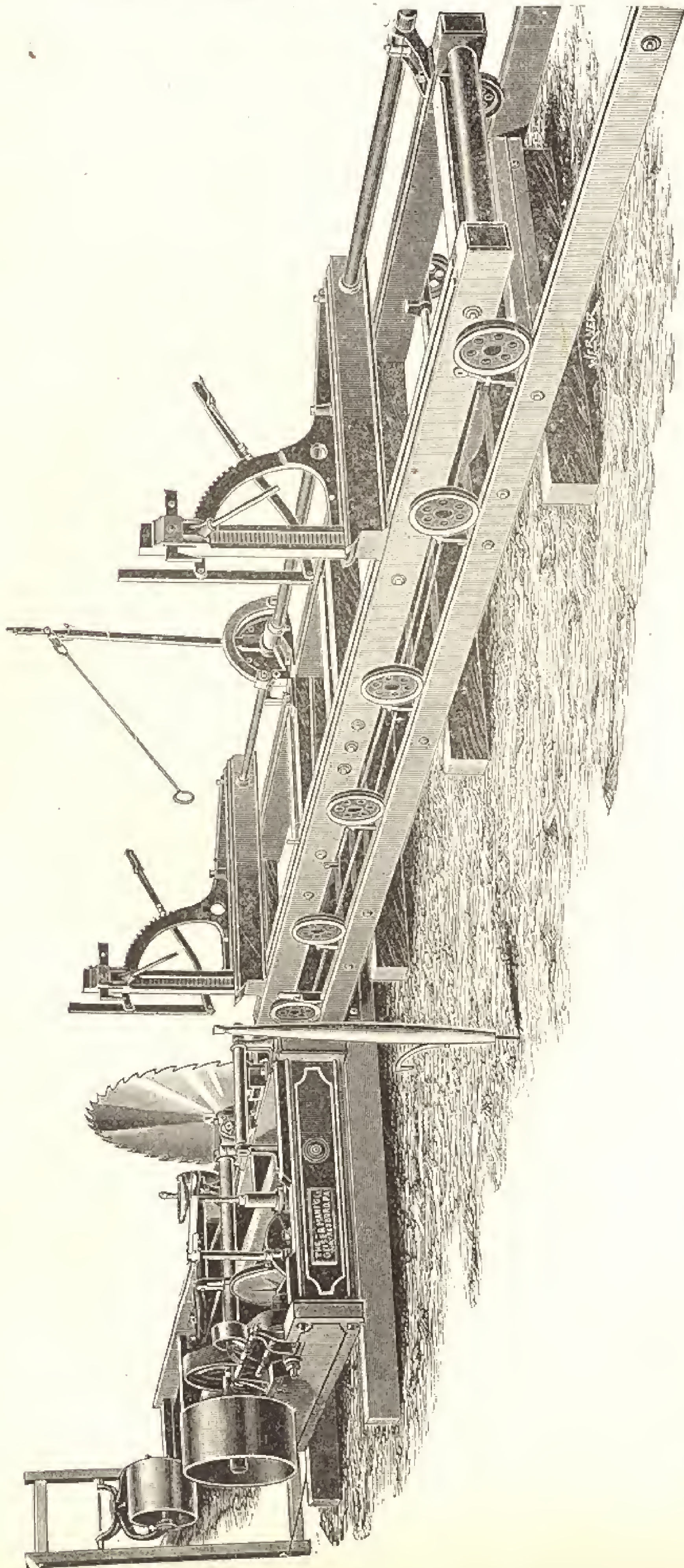


NOTE—Sheave pulleys are so placed that they do not project below bottom of Ways, therefore do not interfere with setting mill level and solid.



THIS CUT ILLUSTRATES OUR HAND EDGER

Size of Driving Pulley, 6 inches in diam., 8 inch face. Size of Saw, 20 inches in diameter. Revolutions required of Saw Mandrel, 1,800 per minute.



OUR NO. 3 SAW MILL, SUITABLE FOR ENGINES OF 20 HORSE POWER OR LARGER

This shows the Parallel Knees and Rope Feed, which are extras and only furnished when specially ordered

